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SOME NEGLECTED ASPECTS OF THE WOOL DUTY

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THE AMERICAN wool duty is levied on a product that has been continuously imported, and from the 1890's until the last decade these imports were regularly a substantial percentage of domestic production. The effectiveness of this duty is an issue of long standing in American tariff controversy.[1] It touches vitally those who have a financial stake in the tariff. The wool duty, as one of the few agricultural tariffs that until recent years benefited the domestic producer, has done much to keep the American farmer loyal to a system of high effective tariffs on industrial products. But the harmony of the long-established alliance in tariff matters between the woolgrower and the wool manufacturer has always been marred by complaints of the woolgrowers that they are not benefiting by the full amount of the duty. The increase in the cost of wool to the American manufacturer as a result of the duty has created the ever-present issue of the compensatory duties on wool fabrics, with their possibilities of concealed protection.

[1] In this article the term effectiveness is used in the sense of the differential between foreign and domestic prices that is attributable to the tariff—that is, the spread adjusted for such differences as exist independent of the tariff.

It is true of course that temporarily part of the effect of almost any duty may be shifted to the foreigner, and that even permanently a part of the burden of duties on such articles as sugar, wool, and meat products may be transferred to the foreign producer. But it is very questionable whether this problem, from the point of view of national economic policy, is of the importance that the exponents of the late Professor Henry Schultz' equilibrium analysis believe. In any case, a determination of tariff effectiveness in the sense of price differential is a prerequisite to the use of the equilibrium method. The determination of effectiveness, in the differential sense, is not always a simple task, and certainly the case of wool gives little support to Schultz' comment that "It should be easy by the price differential 'method' to determine the effect of the tariff on the price of each of our numerous dutiable commodities by merely consulting the Tariff Act and a schedule of freight rates!" Henry Schultz, Correct and incorrect methods of determining the effectiveness of the tariff. JOUR. FARM ECON., Nov., 1935, 17 (4): 637.

To economists this controversy over the effectiveness of the duty presents a theoretical problem of unusual interest on the relation between duties and prices. The relatively small imports of apparel wool in most of the years since 1929, with a complete cessation in some months of imports of particular kinds of wool, has complicated still further the question of duty effectiveness. Some kinds of wool are no longer continuously on an import basis and this has broken the close relations between domestic and foreign wool prices, and has increased greatly the possibilities of concealed protection in the compensatory duties. The situation makes pertinent a reexamination of the problem of duty effectiveness as related to wool.

The Problem of the Grease Pound Duty

On the basis of the generally accepted analysis of the relation of duties and prices, one would expect the wool duty, at least up to 1930, to have been fully effective in the sense of maintaining domestic prices above foreign prices by the amount of the duty.[2] It is on this assumption that the system of compensatory duties on wool fabrics has been based. However, complicating factors have always existed that have prevented any such exact relationship between duties and prices. This was true both under the grease pound duty, which was in effect up to 1913, and under the clean content duty, introduced in the Fordney-McCumber Act of 1922.

Two problems are involved in any analysis of the duty effectiveness up to 1913: (1) the levying of the duty on a grease pound basis, and (2) the difference in the preparation and adaptability for particular uses,[3] and hence in the price, of foreign and domestic wools

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[2] See the analysis of the relation between duties and prices in F. W. Taussig, Some aspects of the tariff question, 3d ed. (Cambridge, 1931), pp. 4–10.

[3] No widely used raw material is less subject to standardization than wool. Much of the confusion in the discussion of the effectiveness of the duty, both before 1913 and since 1922, is because of a failure to recognize the complications which this creates, and the limitations which it places upon the use of statistics of wool prices.

Differences in the grease content of wools create a serious problem, and obviously no valid conclusions could be drawn from a comparison of prices of American wools shrinking, say, 65 per cent, and of foreign wools shrinking 45 per cent. Even when wools are compared on a clean content basis, a valid price comparison must be between wools of the same grade. Wool is graded on the basis of fineness or diameter of fibre, both the blood and numerical systems being used interchangeably in this country. But two wools of the same shrinkage, both grading, say 56, may sell for different prices on a clean basis, because one is in better condition, is of longer staple, is already scoured, thus saving the purchaser the cost of scouring, is softer, or will take particular dyes better. Hence, when the terms "comparable" wools, "similar" wools, or wools of "comparable grade" are used in the wool trade, this does not mean

of the same grade. The old duty of 11 cents per pound on wool in the grease[4] was a duty, not on the product that is sought by the wool manufacturer, but on this product plus waste material, such as grease, sand and burrs. It might be compared to a duty on a product and its container.

The assumption in the framing of the compensatory duties before 1913 was that wool shrank 66.66+per cent in the scouring process, making an 11-cent grease pound duty equivalent to a 33-cent scoured pound duty. With a smaller shrinkage the scoured pound equivalent was correspondingly less.[5] The shrinkage of practically all imported wool was well under 66.66+per cent.[6] Hence, the scoured pound equivalent—which was the constructive rate on the product used by the American wool manufacturer—was considerably less than the figure of 33 cents used as the basis for the compensatory duty. The grease pound rate of 11 cents was in almost all cases collected on a foreign product, different from the product raised by the American woolgrower. The result of the situation was two-fold: (1) American wool in the grease, in almost all cases, was selling above foreign wool of the same grade, not by the full amount of the 11-cent duty, but by a substantially smaller figure, and (2) the compensatory duty levied on wool fabrics in most cases gave a large amount of concealed protection to the

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that these wools should be expected to sell at the same price, or that in the opinion of the wool trade they are the same wools.

This problem is treated in detail in a report by Warner M. Buck, Technical terms of the wool market, Bur. Agr. Econ. 1935, and in a discussion of: Domestic and foreign wool price comparisons and the tariff on wool, in World Wool Prospects, No. 84, April 30, 1935, Bur. Agr. Econ.

[4] This was the duty on Class 1 Wool (clothing wool) from 1890 to 1913, with the exception of the years 1894–1897, when wool was on the free list. From 1867 to 1890 the duty was 10 or 12 cents (dependent upon value), plus a small *ad valorem* duty up to 1883. Almost all of the discussions of the effectiveness of the duty before 1913 base their illustrations on the 11-cent duty. The duty on Class 2 Wool (combing wool) was the same as the duty on Class 1 Wool, up to 1890. Under the Acts of 1890 1897, and 1909, it was 1 cent higher. It also differed from the clothing wool duty in that combing wool washed on the sheep's back paid only the grease pound rate, whereas washed clothing wool paid double the grease pound rate.

[5] A table showing the scoured pound equivalent of an 11-cent grease pound duty on the basis of different shrinkages is given in the Tariff Board report on schedule K submitted in 1911 (wool and manufactures of wool. Message to the President of the United States Transmitting a report of the Tariff board on schedule K of the Tariff Law. House Document No. 342, 62nd Congress, 2nd Session). P. 382.

[6] The report of the Tariff Board stated: "It is certain that the wools actually imported shrink something less than 40%" (p. 382), and its detailed studies of the shrinkage of both foreign and domestic wools showed that not only did foreign wools shrink less than American wools, but also, that foreign wools imported into the United States shrunk less than foreign wools used abroad, thus indicating a selection of wools for the American market on the basis of low shrinkage.

American manufacturer. This was recognized by all students of the wool duty, although they stress different factors in explaining the situation and differ in their conclusions as to just what the "effectiveness" of the duty was.

Opinion on Effectiveness of the Grease Pound Duty

One of the fullest discussions of the factors involved in determining the effect of a grease pound duty upon the price of American wool in the grease is found in the testimony of Mr. F. A. Ellenwood, Secretary of the California Woolgrowers Association, before the Ways and Means Committee in 1913, and in a statement prepared by the National Woolgrowers Association, submitted by Ellenwood.[7] Foreigners came to select the light shrinkage wool for sale in the American market. The development of the frozen mutton trade between Australasia and Europe contributed to this situation by stimulating the raising of cross-bred sheep, which produced wool of lower shrinkage. In the 1880's the skirting[8] of wool became common, decreasing still further the effectiveness of the duty. According to the statement submitted by Ellenwood, "These influences have now reduced our actual protection to but little more than one-half of what it originally was and what the law and the country suppose it is to-day."[9] Ellenwood, although laying emphasis on skirting, seemed to consider this a factor only as it made possible the importation of wool of lower shrinkage, and the implicit conclusion was that skirting would not reduce the effectiveness of a duty levied on a scoured pound basis.[10] Witnesses at hearings on other tariff bills gave similar explanations.[11]

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[7] House Document 1447. 62nd Congress, 3d Session, 4: 4203–4219.

[8] Skirting is the improvement of the fleece by the removal of inferior and soiled parts. It is extensively practiced in Australia.

[9] *Ibid.*, p. 4214.

[10] That factors other than shrinkage limited the effectiveness of the duty was recognized in the statement submitted by Ellenwood, but the sound conclusion was based on the surprising hypothesis that a domestic monopoly was necessary to give the woolgrowers the full benefit of the duty. "We would here call the attention of this committee to the fact that under no form of wool duty can the woolgrower be benefited to the full extent of the duty. . . . This committee must not forget that the woolgrower has formed no trust or combination for the control of his products, and until he does he will not be benefited to the full extent of the tariff." P. 4214. This idea that a duty cannot be fully effective except with monopoly conditions in the importing country appears repeatedly in statements by spokesmen for the wool interests.

[11] A statement submitted by the Montana Woolgrowers' Association in 1909 (Tariff hearings before the committee on Ways and Means of the House of Representatives, House Document 1505, 60th Congress, 2nd Session, 5: 4983) denounced

The Tariff Board, in its report on Schedule K,[12] spoke of low shrinkage of foreign wools, resulting largely from skirting, as reducing the effective scoured pound duty to between 18 and 21 cents. The Tariff Board doubtless recognized that factors other than shrinkage were involved in the higher price of imported wools, but the emphasis in the Report was entirely on the shrinkage factor. The Tariff Commission, in its publications immediately after the World War, followed closely the Tariff Board analysis of the effectiveness of the duty.[13]

Professor Taussig, discussing the conditions before 1913, lays down the general principle that the wool duty would be expected to increase the domestic price by the full amount of the duty.[14] To this he makes one qualification: that the skirting of foreign wool, by making the imported wool better than domestic wool of the same grade, reduced the effectiveness of the duty from 11 to 8 cents a pound.[15] But he does not suggest that this result was due, at least in part, to the low shrinkage of the skirted wool, nor does he suggest that the importation of low shrinkage wools which have not been skirted could have produced substantially the same result.

Dr. Mark Smith's conclusion is that the former duty of 11 cents per grease pound was only effective to the extent of approximately 7 cents because imported wools were "skirted" and "especially selected for their light shrinkage."[16] Professor A. H. Cole points out that the 11-cent grease pound rate was not fully effective, and

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skirting for reducing the effectiveness of the duty to 8 cents. Mr. A. S. Erickson representing the Utah Wool Growers' Association, attributed the reduced effectiveness of the duty to the low shrinkage resulting from skirting. (*Ibid.*, p. 5051.) Professor Chester W. Wright, in Wool growing and the tariff (Cambridge, 1910), gives numerous citations (pp. 284–287) to Congressional Tariff Hearings, Congressional Debates; articles in the Bul. Nat. Assoc. Wool Manufacturers, and other sources, which present essentially the same picture of the problem of shrinkage and skirting in relation to the American Tariff.

[12] *Op. cit.*, pp. 381–384.

[13] The woolgrowing industry (Washington: Government Printing Office, 1921), p. 452; Recent tendencies in the wool trade with special reference to their tariff aspects, 1920–1922 (Washington: Government Printing Office, 1922), p. 14.

[14] Some aspects of the tariff questions. 3d ed. (Cambridge, 1931), p. 304. "The conclusion would seem warranted that the whole supply, domestic as well as foreign, was raised in price by the full amount of the duty."

[15] *Ibid.*, pp. 306–307. "Competent persons in the trade have concluded that a deduction of about three cents from the stated duty must be made in order to offset the effect of skirting; the duty of eleven cents a pound on skirted wool was equivalent to one of (roughly) eight cents a pound on wool not thus assorted."

[16] The tariff on wool (New York, 1926), p. 145.

the impression conveyed is that this was due solely to the low shrinkage of the imported wool.[17] He makes no mention of the better preparation, on which Taussig had placed the whole emphasis. The fullest and most penetrating discussion of the factors involved in duty effectiveness under the old grease pound duty was given by Professor Chester W. Wright.[18] Wright recognized that low shrinkage, improvement of the fleece by skirting, and special properties of foreign wool, are all independent factors reducing the effectiveness of the 11-cent duty, although skirting also might reduce the average shrinkage.

Effect of the Grease Pound Duty on American Wool Prices

The consensus of opinion among students of the old grease pound duty, despite differences in emphasis as to the cause, was that with an 11-cent tariff American wool in the grease sold above "comparable" foreign wool by an amount estimated at between 5 and 9 cents a pound. It is, however, a fallacy to assume, as practically all spokesmen for the wool interests did, that this showed that the duty was responsible for a differential of only 5 to 9 cents between domestic and imported wools. If, on a free trade basis, foreign wool imported into the United States shrank less than American wool, foreign wool would sell here for more than otherwise comparable American wool, say 4 cents more. Under these conditions a tariff of 11 cents, if it maintained a differential of 7 cents between domestic and foreign wool, would have been fully effective. Leaving out the possibility of a reduction in the foreign price, the benefit to the American woolgrower under such circumstances would have been 11 cents, not 7 cents, and the increased cost of wool to the consumer would have been 11 cents a pound, not 7 cents.[19] This approximated the situation that existed up to 1913. Only insofar as

[17] The American wool manufacture, Cambridge, 1925, 2: 10–13. Cole's article on, The textile schedules in the tariff of 1922, The Quar. Jour. Econ. (Nov. 1922), 37: 29–51, also discusses only the shrinkage factor in explaining the failure of the 11-cent grease pound duty to be fully effective.

[18] *Op. cit.*, pp. 284–288.

[19] The fallacy in the idea that the 11-cent duty would be effective only to the extent of 7 cents may be shown by the following example: If American wool on a free trade basis sold for 4 cents less than imported wool, a tariff of 2 cents a grease pound would presumably leave the price of domestic wool 2 cents below the price of foreign wool. It would be just as true—and also just as misleading—to claim that the result of this 2-cent tariff was to lower domestic prices by 2 cents, as to say the 11-cent duty was only effective to the extent of 7 cents.

In the period before 1913, and more particularly in the 1890's, Port Phillip greasy and Ohio fine washed wools were generally regarded as "comparable" wools and the differences in their respective prices in London and Boston were frequently

there was a deliberate selection of light shrinkage wools for the American market was the effectiveness of the duty made less than 11 cents by the shrinkage factor. Some selection of this type took place, but the studies of the Tariff Board showed that even the foreign wools used in foreign mills shrank considerably less than American wools.[20]

The better preparation of foreign wool created a problem similar to that of the lower shrinkage. The view that the skirting of foreign wool reduced the effectiveness of the duty to the spread between the price of foreign and domestic wool of like grade is subject to the same limitations as the view that the high shrinkage of foreign wools reduced the effectiveness of the duty. Only insofar as this difference in preparation was a result of the special selection of foreign wools for the American market because of the American tariff, can the failure of the American price to be 11 cents above the foreign price be taken as evidence that the duty was not "fully effective."[21] Whether the duty was effective to the extent of 11 cents is not certain, but it seems clear that the effectiveness was greater than the price spread between "comparable" American and foreign wools. As a result of the assumption that effectiveness was synonymous with the price spread between "comparable" domestic and foreign wool which would have sold for different prices under free trade, Taussig,[22] and practically every spokesman for the wool-

used as evidence of the effectiveness of the wool duty. (Citations of such price comparisons are in Wright, *op. cit.*, pp. 285–288.) But an inspection of the month to month prices of these wools in the period of free wool in 1894–1897, and in the months of free wool before the outbreak of the World War, shows that the Ohio wool sold for several cents a pound less than the "comparable" Port Phillip greasy. (Figures from tables 86 and 90 in H. M. Stoker, World production and prices of Merino and Cross-bred wool, unpublished doctoral thesis, Library Agr. Econ., Cornell Univ., New York. The London figures were compiled from the price quotations of Schwartze, Buchanan and Co., Boston figures from the Bul. Nat. Assoc. Wool Manufacturers.)

[20] *Op. cit.*, pp. 383–384.

[21] The supposed failure of the wool duty to be fully effective is similar to the situation under the flaxseed duty, described by Professor Roland R. Renne in, The flaxseed market and the tariff, Bul. 272, Mont. State College Agr. Exp. Sta. (Bozeman, 1933). Canadian flaxseed yields about a half pound of oil more per bushel than American flaxseed; Argentine flaxseed about one pound of oil more per bushel than American flaxseed. The result was that in 1931 and 1932 crushers were willing to pay 2 and 3 cents per bushel more for Canadian seed and 4 to 6 cents per bushel more for Argentine seed. As this premium in favor of the imported seed would have existed on a free trade basis, there is no reason to say that the effectiveness of the tariff was reduced by the higher oil content of the imported seed.

[22] Taussig, *op. cit.*, p. 307, states: "If all the imported wool had been skirted, the duty of eleven cents would thus have been the same in effect as one of eight cents on wool strictly comparable to the American fleeces. The burden or loss ascribable to the tariff would then be calculated on a basis somewhat lower than that of the full duty."

growers, have underestimated the benefit of the grease pound duty to the woolgrowers (or looked at from another angle, the cost to the country).

Compensatory System under the Grease Pound Duty

The operation of the compensatory system as it existed up to 1913 has been well told in several places, and no attempt will be made here to repeat that story.[23] There are some aspects of the problem, however, that warrant further analysis, particularly in view of the recent problems that have risen in connection with the compensatory system as a result of the decline in the imports of wool.

This system was based on the assumption that the tariff on wool forced the American manufacturer to pay a price for wool higher, by the full amount of the duty, than that paid by his foreign competitor. Because of shrinkage of wool in the grease, and wastage involved in manufacturing, it was assumed that four pounds of wool in the grease, on which the duty was 44 cents, were required to make one pound of woolen goods. The compensatory duties were fixed accordingly. There was almost unanimous agreement among the students of the wool duty that these compensatory duties, in the years before 1913, involved a large amount of concealed protection.

A compensatory duty on wool fabrics—and the same general principles would apply to a compensatory duty on any manufactured product, when an article used in its manufacture is subject to duty—might give concealed protection to the manufacturer as a result of any one or more of the following situations:

a. A compensatory duty on the wool content of fabrics higher than the duty on wool.
b. An overestimate of the amount of wool required to make a given quantity of fabric.
c. Absence of imports, thus raising the price of American wool above the price of foreign wool—after full allowance for difference in preparation and shrinkage—by less than the full amount of the duty.
d. Dumping of wool in this country, thus raising the price of wool above the foreign price by an amount less than the full amount of the duty.

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[23] See Taussig, *op. cit.*, pp. 322–341; Cole, *op. cit.*, ii: 5–24; Report of the Tariff Board on schedule K, pp. 101–104, 621–626. Taussig, in his, Tariff history of the United States, 8th ed. (New York and London, 1931), *passim*, gives details of the changes in the compensatory system under the various tariff acts.

There is no evidence that the *d* situation has existed. Wool sold in a highly competitive market, and the American manufacturer apparently received no concealed protection from this source. But the *a*, *b* and *c* situations all existed in varying degrees before 1913. Because of the form in which the duty was collected (on a grease pound basis), the *a* and *b* problems were combined. The 4 to 1 ratio was based on two assumptions: first, that three pounds of wool in the grease were required to yield one pound of scoured wool; secondly, that one and one-third pounds of scoured wool were required to make one pound of cloth. The first assumption was widely at variance with the facts, as practically no imported wool shrank two-thirds. The second assumption also did not square with the facts for much of the American manufacturing industry. The concealed protection arising from this combination of circumstances was one of the major scandals of the American tariff system as it existed before 1913.

The evidence is not clear as to whether the *c* situation gave continuous concealed protection, but insofar as it did the protection was small as compared with that involved in the 4 to 1 ratio of the *a* and *b* situation.[24] But the failure to recognize the possibility, if not the actuality, of concealed protection on this score prevented a clear perception of the problems involved when in 1922 the attempt was made to eliminate concealed protection from the wool schedule.

Effectiveness of Wool Duty since 1922

Wool was on the free list, under the Underwood Act, from 1913 to 1921. A duty was again imposed on a grease pound basis in the Emergency Tariff Act of 1921, but little wool was imported while this act was in effect. The wool schedule was thoroughly overhauled

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[24] The Tariff Board gave no attention to the problem in its Report, and I find no suggestion in any discussion of the old compensatory system that concealed protection arose from this source.

The conclusion seems inescapable, however, that so long as any foreign wool was kept out by the tariff, a real possibility of concealed protection existed, albeit on a limited scale as compared with that resulting from the *a* and *b* situations. In the months before the passage of the Tariff Act of 1894, when wool imports virtually ceased, the price differential between London and Boston prices dropped greatly, reaching about the same figure as prevailed during the period of free wool. Again in 1898 and 1899, when imports declined, the differential between London and Boston prices narrowed. Certainly some concealed protection temporarily resulted from these periods of reduced wool imports.

in the Tariff Act of 1922.[25] The duty was shifted to a clean content[26] basis, and fixed at 31 cents a pound. On paper this was a reduction from the assumed scoured pound equivalent of 33 cents in effect up to 1913, but in fact was a substantial increase over the effective scoured pound rate of about 18 to 21 cents a pound which had resulted from the old 11-cent grease pound rate. In the Hawley-Smoot Act of 1930 the clean content rate was raised to 34 cents a pound.

Spokesmen for the wool interests had for many years before 1913 attributed the alleged failure of the duty to be fully "effective" largely to the fact that the duty was on a grease pound basis, and the problem of the better preparation of foreign wools of "comparable grade" had been virtually ignored in public statements. The impression conveyed in 1922 by the testimony before the Committees, and debates in Congress, was that with the shift to a clean content basis the woolgrower would now get the "full benefit" of the duty.[27]

After the duty was put on a clean content basis, complaints from the wool interests continued, to the effect that in some way or other they were being deprived of the intended benefits of Congressional largesse. There were good reasons why, after 1922, American wool would not be expected to sell above foreign wool of "comparable" grade by the full amount of the duty, even when wool was continuously imported. The fact that for considerable periods after 1922, and particularly after 1929, imports of some kinds of wool virtually ceased complicated the situation, although in the minds of the wool spokesmen there seems to have been little if any distinction between the alleged failure of the duty to be fully "effec-

[25] For a full discussion of these changes in the wool duty, see Arthur H. Cole, The textile schedules in the tariff of 1922, Quar. Jour. Econ., Nov. 1922, 37: 29–51.

[26] The term "clean content" of wool, as used in the Tariff Act of 1922 is not identical with "scoured wool," as scoured wool has not had the sand and vegetable matter removed. Hence, a given amount of wool in the grease ordinarily yields scoured wool slightly heavier than its clean content, and assessment on a "clean content" basis makes the tariff slightly lower than if assessed on a scoured-pound basis. Details of the controversy between the wool importers and the Treasury Department over meaning of the terms "scoured wool" and "clean content" are given in the, Bul. of the Nat. Assoc. Wool Manufacturers (June, 1932), 62: 139 and seq.

The difference between a "scoured pound" and a "clean content" duty is in most cases slight, and in my discussion of the situation before 1913 and after 1922 I have followed what seems to be a general practice, and have assumed that the clean content duty after 1922 may be compared with the scoured pound equivalent of the old grease pound duty.

[27] See remark of Senator Smoot, Cong. Record, 67th C. 2nd Session, July 22, 1922, pp. 10, 539.

tive," on account of the poorer preparation of American wool, and the genuine case of partial effectiveness on some kinds of wool as a result of a reduction or cessation of imports, thus making the wool duty, on the average, not fully effective. Mr. F. J. Hagenbarth, representing The National Woolgrowers Association, claimed that the 31-cent duty was only effective to the extent of 21 cents, because of the better preparation of foreign wools.[28] Similarly on the floor of Congress[29] the failure of the duty to be "fully effective" was played up, and the impression was given that the woolgrowers were being cheated when their wool did not bring 31 cents a pound more than foreign wool, even though the foreign wool was better prepared and commanded a premium of from 5 to 8 cents a pound over the "comparable" American wool.

This difference in the preparation of "comparable grades" of foreign and domestic wools would explain why the American price would be above the foreign price by less than the duty. But actually during a large part of the time since 1922, the difference between the average price of "comparable grades" of wool in London and Boston has been less than the duty, adjusted for grading premium.[30]

According to the study of the Tariff Commission, the differential between domestic wool prices in Boston and the price of "similar" foreign wools in London and in Boston, ex-duty, averaged considerably less than the duty, even when adjustment was made for the grading premium.[31] The conclusions of the Tariff Commission may be summarized as follows:[32]

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[28] Tariff Adjustment 1929. Hearings before the Committee on Ways and Means, House of Representatives. 70th Congress, 2nd Session. Schedule xi, pp. 6140, 6176. ". . . the manufacturer finds an average differential against our wools, and justly so in a measure, of about 10 per cent, or 10 cents a clean pound. . . . If we had a 36-cent tariff, he would only receive 26 cents, by reason of the disadvantages of his marketing system over which he has no control." Pp. 6140, 6141.

[29] Letter to Senator John Thomas from Mr. F. R. Marshall, Secretary of the National Woolgrowers' Association. Congressional Record, Nov. 21, 1929, p. 5890.

[30] Two sets of Boston-London price comparisons are available for the post-war years: those collected by the Bureau of Agricultural Economics for the year 1921 to date and published from time to time in the Bulletin of the Bureau: World wool prospects (since January 1937 called, "The wool situation"); and those collected by the U. S. Tariff Commission and published for the period of 1924 to June, 1937, in, Wool prices. Report 120, 2nd ser.

The Tariff Commission's figures are based on trade sources, and the Department of Agriculture figures on official sources.

[31] The grading premium on Fine Territory Staple was taken as 8 cents a pound, on half-blood and three-eighths blood as 6 cents a pound, and on quarter-blood as 5 cents a pound.

[32] Wool prices, p. 13.

Price Differentials and Import Parity Deficiency[33]

	1924–29	1930	1931–32	1933–35	1924–35
Fine territory staple	13.5¢(9.5¢)	19.6(3.9)	18.5(7.5)	20.7(5.3)	16.8(7.6)
Half-blood combing	18.4 (6.6)	24.4(1.1)	19.0(9.0)	23.4(4.6)	20.3(5.9)
Three-eighths-blood combing	22.2 (3.8)	23.1(3.4)	18.0(11.0)	24.6(4.4)	22.2(5.1)
Quarter-blood combing	24.3 (1.7)	20.5(6.0)	16.8(12.2)	25.4(3.6)	23.0(4.3)
Average	19.6 (5.4)	22.0(3.5)	18.0(10.0)	23.5(4.5)	20.5(5.8)

In other words, the effect of the 31-cent duty was to make domestic wool prices, on the average, about 26 cents higher, on a clean content basis, than foreign wool prices; the effect of the 34-cent duty from June 1930 to 1935 was to make domestic wool prices, on the average, about 27 cents higher than foreign wool prices. It would appear that in a correct sense of the term, the American woolgrower, on the average, was not getting the "full benefit" of the duty, and that the domestic manufacturer, on the average, was not paying a price for wool in excess, by the full amount of the duty, of that paid by his foreign competitor.

Too much significance should not be attached to these average figures. In many cases the figures are probably more revealing as to the limitations of any attempt to measure the effectiveness of the duty on as heterogeneous a product as wool than they are as to the exact effect of the duty. Each grade of wool embraces several products, which at least in the short run may be almost noncompeting. At a time when the average effectiveness of the duty was, say, only 20 cents for half-blood wools, the cost of any half-blood wool that was imported was almost certainly raised by the full 31 cents above the price of that wool in London. Whether or not a particular American half-blood wool was 31 cents above the London price of the most closely corresponding foreign wool would depend on the directness of the competition between the particular domestic wool and imported wools.

Two general observations may be made on these figures: (1) the actual average effectiveness was closest to "theoretical effectiveness" (duty rate minus grading premium) in the years when im-

[33] "Import parity deficiency" is the amount by which domestic wool prices, plus grading premium, fell short of foreign wool prices, plus duty. The figures for import parity deficiency are in parentheses.

ports were large, and was least in years in which imports were small; and (2) actual average effectiveness was closer to "theoretical effectiveness" on the coarser grades of wool, where imports were larger, and was further away from "theoretical effectiveness" on the finer grades of wool, in which imports were generally a smaller proportion of domestic production, and in some months ceased altogether.[34]

Further evidence of the slippery content of the term "effectiveness" as applied to the wool duty is found in the difference in the calculated effectiveness when based on the spread between Boston prices of domestic wools and Boston prices of "comparable" foreign wools, ex-duty; and the spread between Boston prices of domestic wools and London prices of "comparable" foreign wools. For the 12-year average the two spreads are practically identical for the fine wools and the three-eighths bloods, and differ by only one-half cent for the half-bloods and one cent for the quarter-bloods. Like all averages, these figures cover up great individual differences. In one year there was a difference of 10 cents between the two spreads for quarter-blood wools, and, in a number of other cases, the annual spreads for a particular grade were in excess of five cents. On a monthly basis the spreads ran much greater in some cases.

The Department of Agriculture figures show, on the average, lower prices for particular grades of wool in London than do the Tariff Commission figures. The result is that the Department of Agriculture figures give a wider spread between Boston and London prices and hence a greater average effectiveness of the tariff.[35]

Wool Prices and the Theory of Duty Effectiveness

An examination of these price relationships under the clean content wool duty in effect since 1922 might easily lead the economist

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[34] For fine wool, average effectiveness on the basis of Boston-London prices in 10 out of 12 years was 4 cents or more below "theoretical effectiveness," and in only one year was it less than 2 cents below theoretical effectiveness. For half-blood wools, average effectiveness was 4 cents or more below "theoretical effectiveness" in 7 out of 12 years, and in two years it was greater than theoretical effectiveness. For three-eighths blood and quarter-blood wools, average effectiveness was 4 cents or more below theoretical effectiveness in only 4 years out of 12, and in two years was greater than theoretical effectiveness.

[35] A comparison between the domestic-foreign price spreads based on Tariff Commission and Department of Agriculture figures is given in, Wool prices, *op. cit.*, pp. 28–30. It seems to be the opinion of the wool trade that the London trade figures, as used by the Tariff Commission, are for wools which are closer to the same grades of wool in Boston than are the official figures.

to believe that he was faced with a situation that overturns accepted views on the relation of tariffs and prices. Here is the apparent paradox of a continuous import of wool, no evidence of dumping, and the average difference between the prices of comparable domestic and foreign wools only 60 per cent to 80 per cent of the tariff, even when allowance is made for the grading premium.

As far as I am aware, no discussions of the wool tariff have appraised the real significance of these post-war price relationships. In 1934 Dr. Haldor R. Mohat, in his study of "The Tariff on Wool,"[36] using the figures of the Tariff Commission given in an unpublished study of 1933, "Memorandum for Correction and Comment on Comparative Wool Prices," reached essentially the same conclusion on duty effectiveness as given in the Tariff Commission's publication of 1937. Mohat did a real service by his inductive treatment of a problem that others had been content to deal with on the basis of general analysis or the opinion of the trade. But a limitation of Mohat's treatment is that he gives the reader the impression that the results are upsetting to the orthodox analysis of the relation of tariffs and prices, without making clear the situation in the wool trade which caused the average effectiveness to be less than the duty.

Taussig, while recognizing the problem presented by the better preparation of foreign wool, does not integrate this with his discussion of the effectiveness of the wool duty after 1921. He gives only an incidental mention of it in a footnote, which is a reservation to the categorical statement in the text: "The domestic price remains higher than the prevailing foreign price by the full amount of the duty."[37] Smith, although in many places emphasizing the varying preparation and properties of wools, seems to revert to the view that for tariff purposes wool is a single homogeneous product when he says: "It is reasonable to assume that the price per pound received for it [the national production of wool] by the growers was increased by an amount no smaller than was the price paid for imported wool, for there would be no object in buying wool abroad if it could be had on better terms at home."[38]

The difficulty is that in the analysis of wool duty there has been a tacit, but very general, assumption that we were dealing with a

[36] Madison, 1935.
[37] Some aspects of the tariff question, p. 472.
[38] *Op. cit.*, p. 262.

duty on a single product, or at most a product that fell within a few well defined grades. What really exists, is a series of separate products, with limited interchangeability, and all subject to the same duty, and all called by the same name. These products have been for statistical purposes lumped together to secure an average price, or at most four average prices, and the behavior of these prices is taken as evidence of what the tariff does to the price of "wool."

The attempt to determine duty effectiveness is complicated, because the duty has a direct effect in increasing the cost of wool that is imported, and also an indirect effect in altering the nature and amount of wool imports. These direct and indirect effects are so interwoven that it is practically impossible fully to disentangle them. The resulting effects of the tariff upon domestic wool prices might be summarized as follows:

1. On every pound of foreign wool that is imported the duty is fully effective in the sense that domestic prices of imported wools are higher than foreign prices of these wools by the full amount of the duty. This is true, no matter what kind of foreign wool, or how much of it, is imported.

2. The existence of the specific duty has stopped the imports of some kinds of wool, either intermittently or permanently.[39] The American manufacturer who might otherwise use these wools if they were duty free finds that with the duty paid they are more expensive than domestic wools that meet substantially the same needs. The result is that the spread between a particular kind of American wool and the foreign wool that corresponds most closely to it is less than the duty.

3. The foreign wools that are imported are rarely exactly identical with domestic wools, entirely aside from the better preparation of foreign wools. Only if it were a matter of complete indifference to the American manufacturer whether he used a particular foreign or domestic wool would the import of the foreign wool be expected to result in the sale of the foreign and domestic wool at the same price in the American market. But it is rarely, if ever, a matter of complete indifference to the manufacturer whether he uses foreign or domestic wool. Even though it may be before

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[39] The Carded Woolen Manufacturers Association for many years attacked the specific duties on wool, both on the old grease pound basis and, after 1922, on the clean content basis, because of their heavy incidence upon the types of wool used in that branch of the industry. Mr. Samuel S. Dale, representing the Association, said in testifying in 1929 on the Hawley-Smoot bill:

"For the two years following the passage of the Fordney bill, the reports of the Department of Commerce showed that the Fordney duty on wool varied from 18 to 191 per cent. The duty on wool actually imported under the specific duty has not and never can represent the tax burden placed on wool, because it does not represent a tax that is on the vast amount of wool shut out by these duties running up not only to 191 per cent but to 200 and 250 per cent of its foreign value."

Tariff Adjustment, 1929, Hearings before the Committee on Ways and Means, House of Representatives. 70th Congress, 2nd Session, 11: 6280.

starting the production of a particular type of fabric, once work has gotten under way it may not be practicable to shift from one wool to another, even though there is a substantial change in the price relations.

As a result of situations 2 and 3, the average effectiveness of the wool duty is a constantly shifting thing, depending upon the nature of the American wool clip, the nature of the wools imported at any particular time, and the kind of wools demanded by the American manufacturer in view of the style situation and his production program.

This conclusion, that the term "duty effectiveness" has little meaning as applied to wool in general, might be dismissed as a tariff curiosity of no great practical significance, were it not for the fact that our system of compensatory wool duties has been, and still is, based on the assumpton that wool is a single product and that the tariff increases the cost of the wool to the American manufacturer by the full amount of the duty.

Compensatory Duties since 1922

With the shift of the wool duty to a clean content basis in the Fordney-McCumber Act, came an end of the compensatory system based on the long established 4–1 ratio. Compensatory duties from 1922 to 1930 were calculated on a 31-cent clean content rate, and conversion ratios based on figures given in the Tariff Board Report of 1911. Some manufacturers claimed that the new compensatory rates were inadequate, but the opinion of objective critics was that these rates, although erring on the side of generosity to the manufacturer, eliminated the major abuse of the older system.[40] They eliminated the concealed protection of the *a* type, and reduced greatly the concealed protection of the *b* type. Concealed protection of the *c* type—failure of American wool prices to be in excess of foreign wool prices by the full amount of the duty, due allowance being made for the better preparation of foreign wool—had apparently been small before 1913. In 1921 and 1922 there was

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[40] "Over-generous allowance for the wastage involved in converting scoured wool into finished cloth concealed protection approximately to the extent of 4 to 8 per cent *ad valorem* on the more expensive worsteds, and something less on woolens. But this was a small item as compared with the exaggerations of the old system." Taussig, Some aspects of the tariff question, p. 477.

" . . . the compensatory rates still give promise of concealed protection, tho, to be sure, on a much smaller scale than previously." A. H. Cole, The textile schedules in the tariff of 1922, p. 46.

virtually no suggestion, either in the publications of the Tariff Commission or in the Congressional hearings and debates, that concealed protection might result from the fact that some types of wools were not on a continuous import basis. Developments under the Emergency Tariff Act, when wool imports came to a practical stand still, and the average margin between foreign and domestic wools was much less than the duty, showed the possibility of such concealed protection, but in the general drive for higher duties these developments attracted almost no attention.

The National Association of Wool Manufacturers made no serious attempt in 1929 and 1930 to have the compensatory rates increased beyond that necessary to offset the increase of the wool duty to 34 cents. The Congressional committees made no recommendations of changes. But from two Senators of the Coalition came an attack of the compensatory duties. Spokesmen for the wool interests had harped on the fact, both in the hearings and the debates, that the 31-cent duty was only "effective" to between 17 and 25 cents. When the new compensatory duties, based on the 34-cent wool duty, came before the Senate in Committee of the Whole, Senator Hayden of Arizona, backed by Senator Blaine of Wisconsin, challenged the rates on the ground that if wool prices were only raised by between 17 cents and 25 cents by a 31-cent duty, the manufacturer had received a substantial amount of concealed protection, and that the proposed compensatory rates also involved a substantial concealed protection.[41]

Those who but a short time before had been explaining, that the wool duty was not fully effective as far as the woolgrower was concerned, were now forced to defend the proposition that the wool duty was fully effective as far as the manufacturer was concerned. Senator Smoot was equal to the task, and successfully squelched the revolt for the reduction of the compensatory duty.[42]

The debate, in which a number of senators participated, helped

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[41] Congressional Record, 71st Congress, 2nd Session, Dec. 12, 1929, and January 6, 1930, *passim*. In the course of the debate Hayden said: "To enact a tariff bill and give the full compensatory duty to the American manufacturer upon the theory that it is necessary to do so in order that he may stand upon a parity in the purchase of his raw material with his foreign competitor, when in truth and in fact his raw materials do not cost him 34 cents more than they cost to his foreign competitor is unfair, is unjust, and is concealed protection to which he is not entitled." Dec. 12, 1929, p. 522.

[42] In the one record vote on the subject, an amendment of Hayden's to reduce the compensatory duty was voted down, 45–34. Dec. 12, 1929, pp. 522, 523.

to bring into the open the fact that when the spread between foreign and domestic wools of "comparable grades" was less than the duty by no more than the grading premium, the American woolgrower was receiving a price higher than the foreign price by the full amount of the duty, and the American manufacturer paying more than the foreign manufacturer by the full amount of the duty. The truth is that the beneficiaries of the wool and wool fabric duties—and at times the critics of those duties—have played fast and loose with the phrase "effectiveness of the wool duty." The specious "failure of the duty to be fully effective," where domestic wool prices were not higher than foreign prices of "comparable wool" by the full amount of the duty because the American wool was not as well prepared, has been confused with the genuine case of partial effectiveness because many kinds of wool are not continuously on an import basis. The first situation gave no concealed protection to the American manufacturer. The second situation involved concealed protection, because the cost to the American manufacturer of his wool was not greater, by the full amount of the duty, than the cost to the foreign manufacturer.

The Tariff Commission has not dealt directly with the question of the post-war compensatory duties, but in some reports passing reference to compensatory duties, and to the spread between foreign and domestic wool prices, indicates the existence of concealed protection. In a report of 1927 on the operation of certain parts of the wool schedule, it says in connection with the duty on blankets in the Emergency Tariff Act:[43]

"Because of the fact that the raw wool duty became effective upon prices slowly and gradually, as the surplus stock of wool in the country was being consumed, this compensatory duty of 45 cents per pound contained a substantial, though diminishing element of protection for a considerable period after the enactment of the law."

More recently it makes an incidental mention of the comparative prices of foreign and domestic wools used in the manufacture of gloves and mittens, which points to concealed protection:[44]

"Only domestic wools have been used in the domestic glove industry for a number of years, because they have been considerably cheaper than duty-paid foreign wools. With rising prices, wool is reaching the import

[43] Tariff information surveys on the articles in paragraphs 1108, 1109, 1110, and 1111 of The Tariff Act of 1922, p. 101.

[44] Wool knit gloves and mittens. Report No. 108, 2nd ser., 1936.

point. When that happens South American wools are usually blended with domestic."

The Commission has published in the past decade a half dozen or more reports on the tariff on manufactured wool, but aside from these two tantalizing references there is no suggestion of concealed protection. In two other reports[45] there is a mention of the compensatory duties, but the discussion is limited to explaining the arithmetic of the compensatory duties and not the correctness of the figures to which the arithmetic is applied.

The fullest and frankest statement from the Tariff Commission is found in a memorandum prepared for Senator Smoot at the time the Hawley-Smoot bill was before Congress, which he read on the floor of the Senate when the compensatory duties were under attack.[46] This memorandum states that in the years 1923–1929 Boston prices of domestic wools "averaged approximately 18 cents higher than like prices for comparable grades in London," and that "aside from freight charges" American prices would only average 24 cents above London prices when the duty was "100 per cent effective," because of the adverse differential of 7 cents against American wools representing "what it costs the domestic mills to put American wools into the same condition as are the foreign wools at the time they are imported." The memorandum points out, quite properly, that the existence of this 7-cent differential should not be taken into account in arriving at the compensatory duties, as it did not give any advantage to the American manufacturer. The remaining 6-cent differential against American wools it attributed to the "haphazard methods used by American wool growers in selling the domestic wools," and it is stated that if the wool growers will "carry their wools until needed by the mills," "this adverse selling differential will automatically disappear." Passing over the suggestion, that all the wool grower needed to do to wipe out this 6-cent differential and extract more from the consumer was to have better marketing methods, it is worth noting what the Commission's memorandum has to say about the relation of this 6-cent differential to the compensatory duties: this "can not be considered in adjusting the compensatory duties in the manufacture of wool," because it fluctuates and at times "may be entirely eliminated."

[45] Infants' wool knit outerwear, Report No. 48, 2nd ser., 1932; Wool-felt hat bodies and hats, Report No. 15, 2nd ser., 1931.

[46] Congressional Record, 71st Congress, 2nd Session, Jan. 6, 1930, pp. 1123, 1124.

Senator Smoot endorsed the admission in this memorandum that whenever this selling differential arose concealed protection might come to the manufacturer, and likewise accepted the view that no attempt should be made to eliminate the concealed protection. This position was in line with the view that the wool manufacturing industry has consistently taken: that the compensatory duties must be adjusted in such a way as to give at all times the least favorably situated American manufacturer the full benefit of the compensatory duty, even though that means permanent concealed protection for the rest of the industry at all times, and even concealed protection to all of the industry at some times. In 1909 Senator Aldrich, when defending a compensatory system that gave concealed protection to a considerable part of the industry, said:

"As it is the weakest link in the chain or the lowest point in the levee that determines efficiency, so we are bound to take the highest-shrinkage wools accessible to foreigners and to calculate the compensatory duty on the basis of these."[47]

More recently, when the compensatory duties were under attack, The National Association of Wool Manufacturers fell back on this old Aldrich-Smoot defense. In the hearings in March, 1938 on the United Kingdom Trade Agreement, before the Committee on Reciprocity Information, Mr. Lynn Edminster, of the State Department, put some searching questions to the spokesmen for the wool manufacturers, as to the effectiveness of the wool duty and the concealed protection given to the manufacturers. Edminster's questioning brought out clearly that under existing conditions domestic manufacturers were protected not only by the high *ad valorem* duties on the fabrics, but that they also received a fluctuating, but at times substantial, protection from the compensatory duties. In order to correct the "misconception" and the "erroneous conclusion" of Edminster, the President of the Association sent him a latter, made public on March 17, 1938.[48]

"During such periods [of small imports] the specific rates may more than compensate for the effective wool rate, but it does not follow that because

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[47] Quoted by Cole, *op. cit.*, 2: 23, from the Bul. of the Nat. Assoc. Wool Manufacturers, 1909, p. 65.

[48] Statement of Representatives of Wool Manufacturers for Hearings before The Committee on Reciprocity Information in Connection with the Negotiation of a Reciprocal Trade Agreement with United Kingdom, Newfoundland and British Colonial Empires. March 17, 1938 (New York, n.d.), pp. 52–54.

of these temporary conditions the compensatory rates should be lowered. . . . You need not feel disturbed because at times there is a somewhat greater degree of protection accorded by the specific rate than would be required by the existing effective rate on wool. Such a condition could exist only during a time of depressed business such as the present. At such a time the domestic manufacturer needs full protection against the foreigner . . . ."

In view of price relations between wool in Boston and London since 1922, one may well question whether this concealed protection is as unusual or insignificant as the Association would have us believe. The significant point, however, is that the Association does not deny that under import conditions of recent years there has been concealed protection. It simply says that the manufacturing industry deserves concealed protection, in view of the alleged inadequacy of the avowedly protectionist *ad valorem* duties.

Conclusion

In resume, we may say of the supposed "ineffectiveness" of the wool duty, that almost entirely before 1913, and to a considerable extent since 1921, it is a creation of the imagination of the spokesmen for higher duties. Occasionally before 1913, and for considerable periods since 1921, the wool duty has, *on the average*, failed to be fully effective in that American prices, *on the average*, have exceeded foreign prices, *on the average*, by less than the rate of duty, even when adjustment is made for the grading premium. But *average* figures of wool prices are, on account of the nature of the product, frequently deceptive. At almost all times the tariff has been fully effective on some kinds of wool; what really happened in the latter months of 1924, and in 1932, 1934 and 1938, when imports declined greatly, was that full effectiveness was limited to a very few kinds of wool. Insofar as the tariff is only partially effective, this situation is the result of putting the duties so high that foreign wools are largely excluded. If wool imports continue to be as small a proportion of domestic consumption as in the last decade it is unlikely that the wool duty will ever be fully effective for all kinds of wool. The *average* effectiveness will vary from time to time with changes in the relative quantity of imports, the kinds of wool imported, and the kinds of wool that enter into the *average* prices in London and Boston used as the basis for a calculation of effectiveness.

At best, any system of compensatory wool duties that is administratively practicable is almost certain to give incidental protection to some manufacturers. The extent of such concealed protection increases greatly when the duty is so high as to exclude, permanently or intermittently, some kinds of foreign wool, thus creating a price differential less than the rate of duty and destroying the assumption on which the compensatory system is based: that the wool used by the American manufacturer—due allowance for grading premium—costs more, by the full amount of the duty, than the wool used by his foreign competitor. The fact that with a partially effective duty, the proper compensatory duty changes constantly, makes the problem of setting the compensatory rate an unusually difficult one. As long as our national policy is to maintain a wool duty that is intermittently, if not permanently, prohibitive of imports on many kinds of wool, it is probably inevitable that the domestic manufacturer will receive some concealed protection. But the situation should at least stimulate further discussion of the wisdom of our present national policy on the wool tariff, a reexamination of the correctness of the existing conversion ratios, and a more critical attitude toward the height of the avowedly protective duties on wool fabrics.

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AN INVESTIGATION ON COMPLEMENTARITY RELATIONS BETWEEN FRESH FRUITS*

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THE PROBLEM of the statistical determination of demand functions has for some time been of interest to agricultural economists. The development of techniques for empirically determining approximations to theoretical demand functions has been closely followed by the use of such techniques. Although the relations between demand functions, theoretical and statistically determined, have been widely discussed and many of the problems are not yet fully resolved, the techniques developed by H. L. Moore, H. Working, M. Ezekiel, H. Schultz, and others, are at present widely used. The earlier and the bulk of contemporary determination of statistical demand functions deal only with a single commodity. But recently more attention is being given to related demand functions and complementarity relations between commodities. This paper presents some results of an empirical investigation of complementarity relations between certain fresh fruits. Such relations deserve considerable consideration in the formulation of agreements and programs which now play an important role in the marketing of many fresh fruits and vegetables. In studying the relations of pears to plums, peaches and oranges, we have applied three statistical tests based on the theory of related demands. We do not consider the theoretical bases of the tests since Henry Schultz did so in his last book.[1] But we shall consider the results of each test separately and note several difficulties that arise in the application of these tests.

The first test we consider was used and referred to by Schultz as the "rough test."[2] The results of this test are given in the following tabulation.[3]

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* Paper No. 94, The Giannini Foundation of Agricultural Economics.

[1] Schultz, H., The theory and measurement of demand. Chicago, 1938, pp. 569–654, where two chapters are devoted to the theory of complementarity, and statistical tests are used to determine the related demands of certain staple agricultural commodities.

[2] *Ibid.*, p. 571.

[3] Secular trends were eliminated from all the ratios and the coefficients of variation were computed from the adjusted data. In using the "rough test" Schultz did not eliminate secular trends from his ratios, although he remarks that if trend adjusted ratios are used more reliance might be placed on the results. The presence of secular trends in the ratios indicates that one of the ratio components was influenced

Commodities	*Coefficients of variation and their standard errors*		*Apparent type of relation*
	Price ratios	*Quantity ratios*	
Pears and plums	7.3±1.3	28.7±5.6	Competing
Pears and peaches	17.0±3.2	26.0±5.0	Competing
Pears and oranges	27.1±5.3	32.6±6.6	Competing or independent?

The above statistical results indicate some important and interesting relations between fresh pears and the other three fruits. If the presumption is that the degree of competition varies directly with the extent to which the variation in the quantity ratios is greater than the variation in the price ratios, then pears compete more strongly with plums than with peaches. According to the above test, pears and peaches do compete in consumption, but to a lesser degree than might be inferred from statements made by some individuals connected with the fruit trade. The opinion that pears suffer most from competition with peaches is not supported by the above analysis, although it is widely held by pear growers and shippers.

The relationship between pears and oranges is ambiguous, at least on the basis of the preceding test. The coefficient of variation of the quantity ratios is larger than the coefficient of variation of the price ratios, and this relationship suggests that pears and oranges are competing in consumption. But the difference between the two coefficients of variation is apparently not statistically significant.[4] Although the foregoing test does not give a criterion for independent goods, the presumption is that when the difference between the two coefficients is not statistically significant the two

relatively to a greater degree than the other component by long-time developments such as gradual but consistent changes in technology of production or slowly changing habits and preferences of consumers. In order to minimize the influences of such changes on the relations between goods, secular trends are eliminated from the quantity and price ratios. We have eliminated the secular trends from all the ratios Schultz used and computed the coefficients of variation in order to see how his results of the "rough test" would be changed. Out of his thirteen pairs of goods, four were reclassified from competing to completing, and one pair changed from apparently independent to competing in consumption.

[4] The conventional tests of statistical significance must not be relied upon since the conditions for their application are seldom fulfilled in economic time series of the nature we have used. But the difference between the pears and oranges coefficients is so small in comparison with the coefficients themselves that it is highly suggestive that the difference is statistically insignificant. In contrast, the differences between the coefficients of variation of the other two pairs of fruits are sufficiently large in relation to the coefficients themselves that it appears highly probable that pears compete with plums and peaches in consumption.

goods may be classified as independent. Such reasoning suggests that pears and oranges may be independent in consumption rather than directly competitive, although such a conclusion is not in accordance with the opinions of many in the pear trade.

The results of the foregoing "rough test" may be compared with those of another test which is more directly related to the theory of demand. Here we shall briefly discuss and present the statistical results of the test which Schultz refers to as the "Hotelling integrability condition" of the special theory of related demands.[5] The statistics pertinent to this test are the net regressions of the price of one fruit upon the quantity of another fruit (or the net regressions of the quantity of one fruit upon the price of another). Theoretically the two corresponding regressions should be equal and of the same sign, and only then are the integrability conditions fully met. In empirical investigations these conditions are rarely fulfilled perfectly; although when the sampling variation of the net regression coefficients is taken into account the regression ranges frequently overlap and the integrability conditions may be considered to have been approximately met. If the signs of the two regressions are the same and each regression is clearly statistically significant, as measured by its standard error, then one may be fairly confident in accepting the indicated type of related demand. In such a situation the test offers both qualitative and quantitative evidence of the type of correlated demand. If the signs of the appropriate net regressions agree, but at least one of the regressions is not statistically significant, the type of related demand may not be wholly clear. If no significance is attached to the standard errors of statistics derived from time series data, then the signs of the appropriate net regressions are the only indication of the type of related

[5] The Hotelling integrability condition may be expressed as follows: If two goods (I and J) are considered, the change in the price of I associated with a change of one unit in the quantity of J is equal to the change in the price of J that is associated with a change of one unit in the quantity of I. In symbols the condition is $\partial y_i/\partial x_j = \partial y_j/\partial x_i$; where y and x represent prices and quantities, respectively. An alternative expression of the integrability condition is $\partial x_i/\partial y_j = \partial x_j/\partial y_i$. See Schultz, H., *op. cit.*, pp. 569–604. Closely connected to this test is another which may be termed the "Hotelling coefficient of complementarity." It may be expressed as follows: $c_{ij} = -\partial y_j/\partial x_i / \sqrt{\partial y_i/\partial x_i \cdot \partial y_j/\partial x_j}$. In fact, the numerator of the Hotelling coefficient is one of the terms in the equation which expresses the integrability condition noted in the text. See Harold Hotelling. Edgeworth's taxation paradox and the nature of demand and supply functions. Jour. Pol. Econ., Oct. 1932, 40: 599. For a precise interpretation of the integrability conditions see: O. Lange, Complementarity and interrelations of shifts in demand. Rev. Econ. Studies, Oct. 1940, 8: 58.

TABLE 1. RELATIONS OF PEARS TO PLUMS, PEACHES AND ORANGES IN NEW YORK CITY, JULY AND AUGUST, 1924–1938

x_1, x_2, x_3, x_4 = New York City unloads of pears, plums, peaches and oranges, respectively (in 100 tons)
y_1, y_2, y_3, y_4 = New York wholesale price of pears, plums, peaches and oranges, respectively (in dollars per 100 pounds)
w = New York State factory wages, June–August (in dollars per week)
t = Time in years (origin, June–August 1931)
(The figures in parentheses are standard errors)

Equation number	Equations								Descriptive constants	
		Constant term	x_1	x_2	x_3	x_4	w	t	Adjusted standard error of estimate (dollars)	Adjusted multiple correlation coefficient
1	y_1 =	4.02065	−.01490 (.00416)	−.00657 (.00928)			+.16942 (.07137)	−.23817 (.06577)	0.5734	.8774
2	y_2 =	3.15512	−.01976 (.00530)	−.01447 (.01183)			+.31844 (.09095)	−.13067 (.08381)	0.7307	.8289
3	y_1 =	3.89550	−.01534 (.00426)		−.00021 (.00255)		+.16230 (.07274)	−.26901 (.05247)	0.5874	.8709
4	y_3 =	3.02198	−.00699 (.00388)		−.00933 (.00232)		+.24279 (.06623)	−.05250 (.04777)	0.5348	.8132
5	y_1 =	2.04480	−.01486 (.00406)			+.00293 (.00307)	+.19277 (.07649)	−.29371 (.05611)	0.5625	.8823
6	y_4 =	4.45533	+.00551 (.00686)			−.01934 (.00519)	+.27379 (.12932)	+.13835 (.09486)	0.9510	.8786

Source of data:
Based on data in table 3.

demands. From the equations in table 1 we obtain the following relations:

The Theoretical and Observed Conditions on the Demand Functions as Calculated from the Arithmetic Demand Equations for Pears, Plums, Peaches, and Oranges in New York City, July–August, 1924–1938

x_i, x_j = Quantities demanded of any two commodities, unloads in 100 tons.
y_i, y_j = The corresponding prices, dollars per 100 pounds.

(Figures in parentheses are standard errors)

Commodities	*Hotelling condition* $\frac{\partial y_i}{\partial x_j} = \frac{\partial y_j}{\partial x_i}$	*Probable type of relation*
Pears and plums	$-.00657 = -.01976$ (.00928) (.00530)	Competing
Pears and peaches	$-.00021 = -.00699$ (.00255) (.00388)	Competing
Pears and oranges	$+.00293 = +.00551$ (.00307) (.00686)	Completing

Examination of the statistics in the tabulation just given indicates that for two pairs of goods—pears and plums, and pears and peaches—both terms of the Hotelling condition equation are negative; whereas, for pears and oranges both terms of the equation are positive. Since the signs are alike in both terms of each of the equations, the Hotelling condition is verified qualitatively. The test suggests that pears are competing with both plums and peaches, but completing with oranges. These conclusions result if the signs of the terms in the Hotelling condition equations are viewed as the criteria of classification as competing or completing goods. However, the conclusions may be statistically invalid since in each of the equations at least one term is smaller than its standard error. But each term in the equations is the most probable single estimate of the corresponding true regression and the conventional interpretation of standard errors computed from time series data is of doubtful validity. Since the "rough test" and the Hotelling condition test yield fairly similar results, there are some grounds for concluding that pears do not compete with oranges in consumption but do compete with plums and peaches.

The preceding test has two limitations. The first one is that the theory on which the test is based assumes that utility is measurable; the second limitation is the assumption that the marginal

TABLE 2. RELATIONS OF PEARS TO PLUMS, PEACHES AND ORANGES IN NEW YORK CITY, JULY AND AUGUST, 1924–1938

x_1, x_2, x_3, x_4 = New York City unloads of pears, plums, peaches, and oranges, respectively (in 100 tons)
y_1, y_2, y_3, y_4 = New York wholesale prices of pears, plums, peaches and oranges, respectively (in dollars per 100 pounds)
w = New York State factory wages, June–August (dollars per week)
t = Time in years (origin, June–August 1931)
(The figures in parentheses are standard errors)

Equation number	Equations								Descriptive constants	
		Constant term	y_1	y_2	y_3	y_4	w	t	Adjusted standard error of estimate (100 tons)	Adjusted multiple correlation coefficient
1	$x_1=$	+163.41667	−19.17780 (18.81783)	−15.60794 (13.98160)			+ 8.51542 (3.87239)	−10.83552 (3.13866)	27.2546	.8360
2	$x_2=$	+ 30.96788	+ 3.42081 (12.72635)	− 8.08788 (9.45565)			+ 3.00319 (2.61885)	+ 4.16729 (2.12267)	18.4322	.6039
3	$x_1=$	+188.89536	−34.67716 (11.34886)		− 5.16405 (10.58638)		+ 7.48026 (3.96919)	−12.26063 (2.97629)	28.5653	.8181
4	$x_3=$	+368.22122	+22.55245 (17.35144)		−68.85655 (16.18577)		+14.22270 (6.06854)	+ 1.26049 (4.55048)	43.6735	.7826
5	$x_1=$	+183.46998	−39.09332 (11.21848)			− 2.47284 (6.62929)	+ 8.29694 (5.44414)	−13.46588 (2.99435)	28.7041	.8161
6	$x_4=$	+407.61233	− 3.48096 (14.68605)			−30.26976 (8.67836)	+ 4.51072 (7.12689)	+ 6.60536 (3.91985)	37.5759	.8819

Source of data:
Based on data in table 3.

utility of money is constant. This second limitation, which is equivalent to the assumption that the amount of money which a consumer allocates to a good is such a small part of his income that the marginal degree of utility of his expenditure is constant, is not serious in connection with individual fresh fruits. The expenditure on consumption of fresh pears, peaches, plums, or oranges is probably such a small proportion of the total income of consumers that the marginal degree of utility of money may be neglected. But both limitations can be overcome by resorting to another test which is available. That test is based on important developments made by the Russian economist Slutsky.[6]

We have applied the Slutsky criterion of complementarity to the relations of pears to plums, peaches, and oranges. The equations in table 2 were used since the general theoretical conditions of the test may be calculated more easily when quantities are the dependent variables, although in our data generally better fits are obtained when prices are the dependent variables. The results may be expressed as follows:

Commodities	*Slutsky condition*[7] *substitution effect*		*Income effect*		*Probable type of relation*
	$\frac{\partial x_i}{\partial y_j}+x_j\frac{\partial x_i}{\partial w}$	$=\frac{\partial x_j}{\partial y_i}+x_i\frac{\partial x_j}{\partial w}$	$-x_j\frac{\partial x_i}{\partial w}$	$-x_i\frac{\partial x_j}{\partial w}$	
Pears and plums	-0.04107	$=+0.10197$	-0.00497	-0.00423	?
Pears and peaches	-0.12505	$=+0.66441$	-0.02249	-0.02005	?
Pears and oranges	-0.05032	$=-0.09310$	-0.02033	-0.00636	Completing

The results of the two pairs of commodities, pears and plums, and

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[6] Eugenio Slutsky, Sulla teoria del bilancio del consumatore. Giornale Degli Economisti e Rivista di Statistica. July, 1915, 51: 1–26.

[7] See J. R. Hicks, Value and capital. Oxford, 1939, pp. 307–314. Also, H. Schultz, *op. cit.*, pp. 620–647, where the Slutsky condition is discussed and applied to test the relations between several commodities. Theoretically, both sides of the equation expressing the Slutsky condition must be equal and of the same sign. If they are both positive, the goods are competing in consumption; if they are both negative, the goods are complementary. The partial regressions in the equations in table 2 were substituted in the Slutsky condition equation, and the partial effects were converted to a pounds-per-capita and cents-per-pound basis. For x_i and x_j were substituted the arithmetic means of the pairs of goods, and the partial effects were converted to a per-capita basis by dividing by 7,000,000, the population of New York City in 1930.

pears and peaches, are disappointing since the two sides of the Slutsky condition equations do not agree even in sign. In connection with pears and oranges, the results of the Slutsky condition are consistent with the previous tests, and the indications again are that pears and oranges are not competing in consumption.

Since the results of the above four tests are not wholly consistent, we do not have a clear basis for drawing definite conclusions. In general, the evidence strongly suggests that pears and oranges are noncompeting in consumption, and there is some evidence that pears compete in consumption with plums and peaches. It must not be inferred that these conclusions are beyond doubt, but they appear logical when consideration is given to the ordinary uses of the four fruits. When one recalls that to be competing in consumption two goods must be substitutable for each other, our conclusions seem not improbable. Pears, peaches, and plums are deciduous fruits that may be eaten fresh or preserved. But oranges, a citrus fruit, generally are purchased to meet a different want than pears usually satisfy. Fresh pears, fresh peaches, and fresh plums are eaten mostly out of hand, whereas a large proportion of oranges purchased are consumed in the form of juice.[8] To that extent pears and oranges are not highly substituted for each other in consumption. Consequently, the results of the tests just recorded substantially agree with what one might expect from the nature of the commodities and their conventional use.

Since different tests of complementarity may yield apparently contradictory results, it is pertinent to consider some reasons why such ambiguities may arise. Hence, we briefly consider several problems encountered in connection with the application of available tests because some may be affected more by certain difficulties than are others.

In all of the foregoing tests of complementarity we have considered the interrelations between fruits two at a time. In the ratio or "rough test" the prices and quantities of only two fruits were dealt with simultaneously, and in the Hotelling and Slutsky tests the multiple regression equations including variables of prices, quantities, wages, and "time" were considered as closed sets. It is

[8] An estimate of the California Fruit Growers Exchange in 1937 indicates that approximately two-thirds of the annual orange crop is consumed in the form of juice. Annual report of the general manager of the California fruit growers exchange, year ending October 31, 1937, p. 24.

highly probable that fruits other than peaches, plums, and oranges are related to pears in consumption. Consequently, it is desirable to be able to deal with more than two fruits at a time. But the criteria we have used become highly complicated when they are applied to three or more goods as a group. The omission of some fruits that are related to pears in consumption may account for the failure of the Hotelling and Slutsky tests to yield more clear-cut results.

We computed the Hotelling and Slutsky conditions from linear arithmetic demand functions. The fitting of other demand functions such as parabolic or logarithmic curves may have resulted in a better approximation to the observed data, but it is unlikely that the indicated types of related demands would have been different. A more serious difficulty of a particular method of fitting the demand functions is that equations in which the prices are the dependent variable may yield a different type of related demand than equations in which quantities are the dependent variable. If the integrability conditions are satisfied with respect to sign when prices are the dependent variables, it does not necessarily follow that the integrability conditions will also be satisfied with respect to sign when quantities are the dependent variable. An example is the situation that exists in the related demand equations of pears and plums. Such ambiguities increase the difficulties of determining statistically the types of related demands between various goods and suggest the need of more satisfactory statistical tests of complementarity.

Similar to other statistical descriptions, our tests of related demands yield average relations. Since our data pertain to New York City over a fifteen-year period, the indicated types of related demands are average relations over that period for the market as a whole. The correlated demands may not be typical of particular individuals or groups of individuals, and even for the entire market the correlated demands may vary from year to year. Changes in consumers' preferences, due to factors other than changes in prices and incomes, may affect the related demands. For example, a change in food habits may result in a type of related demand different in one period than in another. It may be that before oranges were consumed extensively in the form of juice, pears and oranges were competing; but later modes of orange consumption may have resulted in oranges and pears becoming completing or independent

in consumption. The types of related demands indicated by statistical tests based on market data for a group of years must be considered as descriptive of average relations over the entire period covered by the data.

AUCTION PRICES AND UNLOADS OF PEARS, PLUMS, PEACHES, AND ORANGES IN NEW YORK CITY DURING JULY–AUGUST; AND NEW YORK STATE AVERAGE WEEKLY FACTORY WAGES, JUNE–AUGUST, 1924–1938
(Prices in dollars per 100 pounds; unloads in tons; wages in dollars per week)

Year	Pears		Plums		Peaches		Oranges		New York State
	Price	Unloads	Price	Unloads	Price	Unloads	Price	Unloads	Factory wages
1924	8.04	18,489	8.86	6,582	4.96	41,830	6.63	21,258	27.22
1925	5.67	21,919	7.27	5,526	4.87	38,772	9.19	15,426	28.03
1926	5.44	29,328	6.68	5,742	3.35	46,516	7.20	24,762	28.89
1927	7.15	17,082	8.09	5,758	5.70	32,500	8.63	22,766	29.14
1928	5.81	20,708	7.41	6,000	4.13	46,820	10.71	18,766	29.34
1929	7.60	13,071	10.86	3,504	6.70	36,990	6.36	35,702	29.97
1930	5.06	22,068	6.23	7,998	6.35	29,680	10.50	23,718	28.68
1931	5.40	19,255	6.86	5,638	3.91	50,940	5.81	39,263	26.35
1932	4.06	17,293	6.09	7,364	4.57	27,642	4.71	38,553	21.98
1933	4.78	11,063	5.86	8,136	3.57	35,560	4.60	36,540	22.26
1934	5.04	18,552	6.36	6,955	4.74	29,762	5.73	34,022	23.26
1935	4.94	9,605	7.00	6,807	4.61	37,338	4.96	36,817	24.16
1936	4.56	14,161	6.36	6,576	5.35	31,906	5.87	34,201	25.35
1937	4.98	11,890	7.95	12,298	5.35	27,574	7.67	28,302	27.97
1938	3.70	14,289	5.70	12,384	4.28	38,668	4.61	40,091	26.07

Sources of data:

Data compiled by S. W. Shear, Giannini Foundation of Agricultural Economics. Prices of oranges, plums, and pears derived from compilations by various agencies from the New York Daily Fruit Reports. Prices of peaches from compilations by United States Department of Agriculture Agricultural Statistics and current mimeographed reports of the United States Department of Agriculture and Bureau of Agricultural Economics.

Unloads from United States Department of Agriculture Bureau of Agricultural Economics. Unloads of fruits and vegetables at New York City, annual mimeographed reports. Data reported in car lot equivalents and converted to tons at various factors depending on the fruit and state of origin. Unloads include only rail and boat unloads prior to July 15, 1928; thereafter truck unloads also included.

The New York State factory wages are simple averages of the average weekly wage for June, July and August. 1924–1935 data from Bureau of Labor Statistics, Handbook of labor statistics, 1936. p. 931. 1936–1938 data from New York State Industrial Commissioner. Department of Labor. The Industrial Bulletin, monthly issues.

In studying the relations between the consumption of various foods, it is logical to utilize data on quantities purchased by consumers and prices that confront them. Consequently empirical tests of complementarity should be based on retail sales and prices. This

is especially true of nonperishable goods since their farm prices and retail prices are not necessarily highly correlated over short periods of time. For highly perishable foods, such as fresh fruits, retail and wholesale or auction prices follow each other closely, since retailers replenish their stocks several times weekly and even daily. It is questionable whether the use of retail sales and prices would have resulted in types of related demands different from those we obtained from wholesale prices and unloads. A great difficulty in using retail data is to obtain satisfactory quotations of retail prices, and it is even more difficult to obtain adequate measures of retail sales. Wholesale prices face retailers and wholesale sales measure the purchases of retailers. Goods that are competing in the consumption of the final consumer need not be competing for retailers who may strive to carry a full line of goods. In this sense, two fruits may tend towards being completing for the retailer, but competing in the demands of final consumers.

Available tests of complementarity, consider the related demands of goods that simultaneously face the consumer. For example, the consumer has the choice of purchasing either pears or peaches or both; but the two fruits must be available during the same period of time. If the consumer purchases both fruits, it is immaterial which one he consumes first as long as he purchases both of them together. There is a different type of related demand that cannot be analyzed by criteria available at present. We may term this sort of related demand "complementarity over time," or "serial complementarity" which may be of considerable importance to highly seasonal commodities. Complementarity over time concerns the demand relations between goods that are not always available for purchase during the same period of time. For example, if fresh peaches are abundant and low in price before fresh pears are on the market, the demand for pears, when they become available, may be less than it would have been if peaches had not been abundant and low in price. That is, relations between the patterns of seasonal variation in shipments of two fruits may affect their related demands. Pear growers and shippers believe that abnormally early and abundant supplies of fresh peaches adversely affect the demand for fresh pears that subsequently arrive on the market. If such an opinion is sound, it indicates that peaches compete over time with pears, in the sense that the demand for pears is a function of the price of peaches prevailing prior to the appear-

ance of pears on the market. Variations of this type of related demand over time may be constructed, and the existence and measurement of such relations merit investigation. A logical early step in that direction is the development of theoretical and statistical criteria for distinguishing serial complementarity.

Another difficulty in empirically determining complementarity relations, by computing the Hotelling and Slutsky conditions, is that they rest upon relations between theoretical demand functions. It is doubtful whether statistical demand functions determined by means of multiple correlation from time series data are approximations to the Marshallian or theoretical demand functions. The method we used to obtain the numerical values of the Hotelling and Slutsky conditions, which is the same as Schultz's method, is no more valid than using statistical demand functions based on multiple regression to draw conclusions which follow partly from the characteristics of theoretical demand functions. Hence, the statistical determination of complementarity relations by the method of multiple regression, based on time series data, stands or falls with the validity of statistically determining demand functions by that method.

The several difficulties we have noted, indicate some ambiguities that may arise when attempts are made to apply certain theoretical complementarity conditions to actual time series data. However, such attempts are often necessary since complementarity relations are of practical as well as of academic interest. The indications that pears compete with plums and peaches in consumption may be of considerable importance in the formulation of marketing and price policies by grower and shipping interests and other groups in the pear trade. There is some evidence for expecting that when large supplies of plums or peaches are on the market so that their prices are depressed, the price of pears also will decline since consumers may substitute plums or peaches for pears. But relatively short supplies of plums or peaches are likely to be associated with increased prices of the two fruits and consumers may substitute pears for plums or peaches. Consequently, the market demand for pears may increase, resulting in an increased price for pears. On the grounds that pears and oranges do not compete in consumption, large supplies and low prices of oranges do not directly affect the price of pears adversely. The existence of such related or correlated demands between various commodities may considerably affect the

outcome of a marketing agreement pertaining only to one of the commodities. Since 1933 various forms of marketing agreements on California pears, under state or federal jurisdiction or both, have been in effect. Some of those agreements contain features designed to enhance growers' returns by regulating the flow of shipments and raising market prices. But under certain conditions the net effect of such agreements may be undesirable from the viewpoint of pear growers.[9] A price-raising pear marketing policy, formulated without reference to the correlated demands between pears and peaches or pears and plums, may result in consumers substituting plums and peaches for pears to such an extent that the returns to growers actually may be reduced. Here we do not present a brief for or against marketing agreements, since their feasibility and success depend on many additional considerations. But it is important that in the discussion, formulation and prosecution of marketing programs, consideration be given to the relations between various commodities.

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[9] In 1932 Professor Hotelling made a statement the importance of which had not been sufficiently appreciated and which is still pertinent. He wrote: "It is quite possible, as far as the evidence now goes, that in many practical questions of governmental policy the best expert advice has gone astray because of reliance on the simplified cases treated in the textbooks, in which the correlation of demand for different commodities is neglected." Harold Hotelling, *op. cit.*, p. 583.

LENGTH OF HAUL AND FARM COMMODITY PRICES

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IN INCURRING freight charges for the movement of agricultural products the shipper is interested in: (1) the basic rate on which the goods move as compared with rates on other commodities; (2) the length of the haul necessary to move the products to market. If freight rates are made on a distance basis, length of the haul determines the total charge.[1] When rates are made on some basis other than distance, the length of haul still strongly influences the amount of the charge. Because many farm commodities are low in value relative to their weight and bulk, the distance to market is extremely important.

Considerable attention has been given to revision of basic freight rates for agricultural products. Notable among the efforts to obtain lowered rates for farm products is the Hoch-Smith Resolution of 1925.[2] This resolution directed the Interstate Commerce Commission to make a thorough investigation in order to bring about with the least possible delay such lawful changes in the rate structure as would foster, at the lowest possible lawful rates compatible with maintaining adequate transportation service, the freedom of movement of agricultural products affected by the depression. In the Deciduous Fruit Case,[3] however, the Supreme Court held that the resolution did not purport to make a change in the existing law and was not in the nature of a rule intended to control rate making. Although the resolution apparently did not bring about any basic changes in rate making for agricultural products, a number of general rate surveys were made.[4] The discontinuance of these investi-

[1] In a distance rate scale rates increase as distance becomes greater, but the rates do not increase proportionately with distance. For example, on the rate scale applicable within Southern Territory the first-class rate for 100 pounds for 50 miles is 62 cents; for 100 miles, 84 cents; for 200 miles, 112 cents; and for 600 miles the rate is 189 cents. For discussions of mileage rates see J. Haden Alldredge, Railroad mileage freight rates, Ann. Amer. Acad. Pol. and Soc. Sci., Jan. 1934, pp. 185–191; and Stuart Daggett, Mileage rates and the interstate commerce commission, Quar. Jour. Econ., Feb. 1932, pp. 281–315.

[2] U. S. Code, title 49, section 55.

[3] Ann Arbor Railroad Company v. United States, 281 U. S. 658 (1930). The same construction was followed in Atchison, Topeka and Santa Fe Railway Co. v. United States, 284 U. S. 248 (1932).

[4] A chronological history of these cases may be found in the 46th Annual Report of the Interstate Commerce Commission, Washington, Government Printing Office, 1932, pp. 29–31.

gations, with certain exceptions, was ordered in 1933,[5] and the last of the hearings was held in 1940.[6] A study of the effect of the Hoch-Smith Resolution is now being carried on by the Bureau of Agricultural Economics.[7]

Freight rates on farm commodities were given attention in the Transportation Act of 1940. It is declared in Section 5 to be the policy of Congress that shippers of all farm commodities for export shall be granted export rates on the same principles as those applicable to rates on industrial articles for export.[8] In addition, the Interstate Commerce Commission is directed to make a comprehensive investigation into the rates on manufactured products, agricultural commodities, and raw materials. According to the Commission, "any residue of force which may have remained in the Hoch-Smith Resolution" after interpretation by the Supreme Court is superseded by these later and more comprehensive declarations of Congressional policy.[9]

Sufficient time has not yet elapsed to allow determination of whether these provisions of the Transportation Act of 1940 can influence freight rates on agricultural products.

Under present Interstate Commerce Commission practices depressed economic conditions alone are not sufficient grounds for reductions in freight rates. The Commission held comparatively early in its existence that "the test of the reasonableness of a rate is not the amount of the profit in the business of a shipper or manufacturer, but whether the rate yields a reasonable compensation for the service rendered."[10] This attitude was apparently tempered somewhat in later years by the holding, that in considering the reasonableness of rates economic conditions may be relevant but cannot be accepted as controlling.[11] Federal courts have sanctioned such a doctrine.[12]

More recently, the Commission has stated somewhat indefinitely that the economic condition within an industry has a direct bearing

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[5] 47th Annual Report of the Interstate Commerce Commission, 1933, p. 12.
[6] 54th Annual Report of the Interstate Commerce Commission, 1940, p. 16.
[7] Traffic world, February 15, 1941, p. 401.
[8] Export rates are those provided for the inland haul of goods destined to foreign markets, and are usually lower than similar domestic rates.
[9] 54th Annual Report of the Interstate Commerce Commission, *supra*, pp. 15–16.
[10] Central Yellow Pine Association v. Illinois Central Railroad Company, 10 ICC 505, 535 (1905).
[11] Rates and charges on grain and grain products, 91 ICC 105, 143 (1924).
[12] 138 Fed. 753 (1905).

upon a basic element in making rates, that is, what the traffic will bear, or, differently stated, the value of the service to the shipper.[13]

While it is debatable whether the present general level of rates on farm products should be lowered, situations probably exist in which unjustified discrimination in freight rates exist to the detriment of moving farm products. Reduced rates in these cases would go far toward solving transportation problems for individual commodities or groups of commodities, but it may be seen that transportation agencies cannot keep on lowering the general level of rates indefinitely and continue to render transportation service. Nevertheless, the farmer wants and needs a smaller transportation bill.

Taking for granted that he is not interested in basic rates *per se*, but in a smaller total freight charge, there is another approach that would aid in bringing about the desired end. It is a decrease in the factor mentioned: length of haul required to market farm products. As pointed out previously, the length of haul is either a controlling or strongly influential factor in determining transportation charges; consequently, a distance decrease under the present system of rate making would inevitably lead to smaller charges.

In view of past experience with legislation and the Commission's attitude, reducing the total freight bill by means of shortening hauls has the advantage of avoiding the expense and effort incumbent upon attempting to get the downward revisions in freight rates necessary to decrease materially the general level of transportation costs for agricultural products.

This paper examines the influence of the present pattern of freight rates in the United States upon the location of markets for agricultural goods, which in turn determine the length of haul required for the marketing of agricultural products. The effects of the amount of transportation service used upon the prices received by the producers of agricultural products are analyzed. Finding that uneconomic conditions exist, the paper concludes with a suggestion for remedying these conditions.

The Regionalized Freight-Rate Pattern

The United States, for the purpose of making railroad freight rates, is composed of five rate territories: Official, Southern, South-

[13] Livestock—western district rates, 190 ICC 611, 633 (1933).

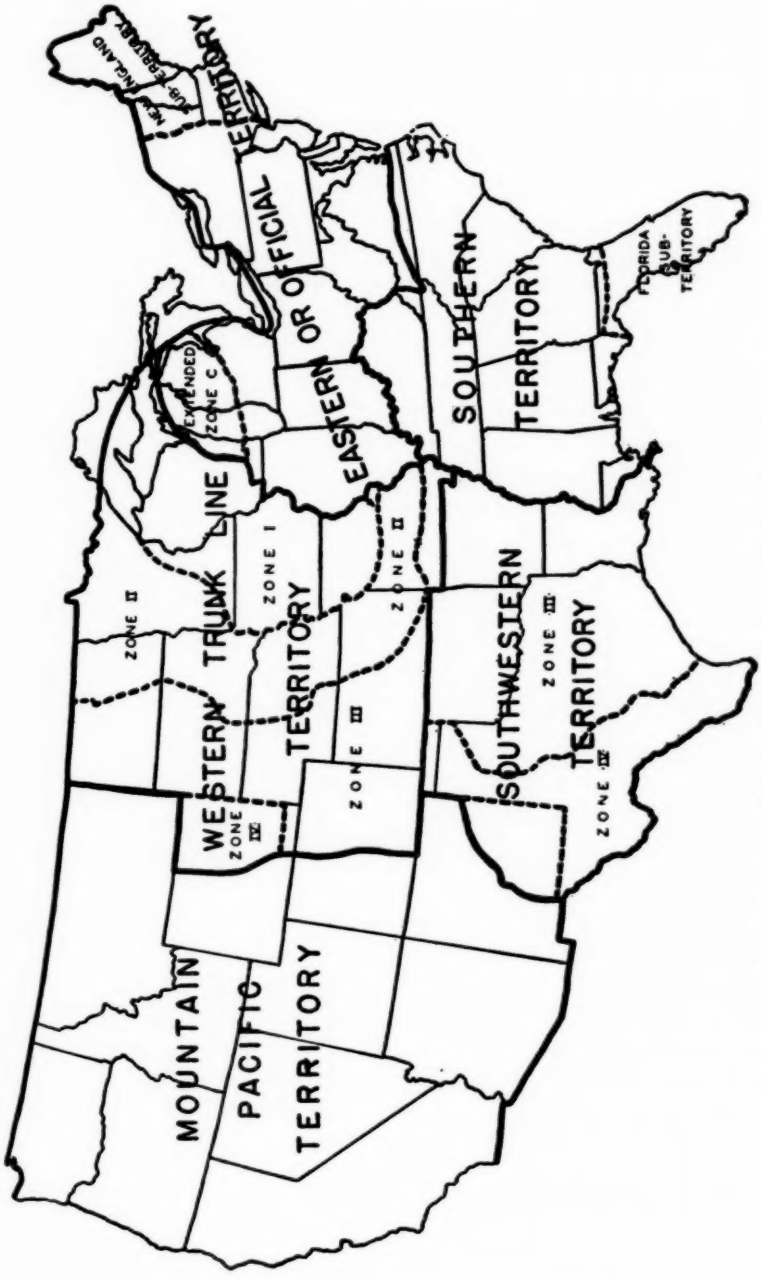

FIG. 1. RAILROAD FREIGHT RATE TERRITORIES OF THE UNITED STATES

TABLE 1. POPULATION OF THE FREIGHT-RATE TERRITORIES OF THE UNITED STATES

Rate territory	Thousands of persons						Percentage of total U. S. population					
	1890	1900	1910	1920	1930	1940	1890	1900	1910	1920	1930	1940
Official	32,540	38,796	46,159	53,594	62,499	67,186	51.69	51.05	50.19	50.70	50.90	51.03
Southern	12,118	14,327	16,419	18,068	20,357	22,728	19.25	18.85	17.85	17.09	16.58	17.26
Southwestern	4,381	6,103	8,271	9,636	11,477	12,236	6.96	8.03	8.99	9.12	9.35	9.29
Western Trunk-Line	11,059	12,985	14,817	16,171	17,283	16,184	17.57	17.09	16.11	15.30	14.08	12.29
Mountain-Pacific	2,849	3,784	6,306	8,241	11,159	13,335	4.53	4.98	6.86	7.79	9.09	10.13
Total, United States	62,948	75,995	91,972	105,711	122,775	131,669	100.00	100.00	100.00	100.00	100.00	100.00

Source: United States Census, 1890, 1900, 1910, 1920, 1930, and 1940.

TABLE 2. VALUE OF MANUFACTURES BY FREIGHT-RATE TERRITORIES OF THE UNITED STATES

Rate territory	Millions of dollars						Percentage of total value for U. S.					
	1909	1919	1929	1933	1935	1937	1909	1919	1929	1933	1935	1937
Official	14,959	46,322	51,333	22,317	32,785	43,491	72.36	74.21	72.88	71.16	71.65	71.63
Southern	1,355	4,228	5,045	2,824	3,877	5,109	6.56	6.77	7.16	9.01	8.47	8.42
Southwestern	551	2,053	2,574	1,167	1,768	2,399	2.66	3.29	3.65	3.72	3.86	3.95
Western Trunk-Line	2,658	5,859	6,070	2,699	3,888	4,948	12.86	9.39	8.62	8.61	8.50	8.15
Mountain-Pacific	1,149	3,956	5,413	2,352	3,441	4,766	5.56	6.34	7.69	7.50	7.52	7.85
Total, United States	20,672	62,418	70,434	31,359	45,760	60,713	100.00	100.00	100.00	100.00	100.00	100.00

Source: Manufactures Section, United States Census, 1910, 1920, 1930; Biennial Census of Manufactures, 1933, 1935, 1937.

western, Western Trunk-Line, and Mountain-Pacific, as delineated on figure 1.[14] The rate structure of each territory has its own characteristics, but generally two features of the freight-rate structure stand out: Official Territory has the lowest level of rates in the country on manufactured products, while the rate structures of the remaining territories are characterized by comparatively high rates on manufactured goods and low rates on raw materials. Rates applying from the South and West to Official Territory on raw materials are about the same, distance considered, as similar rates within the southern and western rate territories. This arrangement encourages the movement of raw materials out of the South and West into Official Territory, where conversion into finished goods is completed. The finished goods are, in part, returned to the territories producing the raw materials. Obviously the rail hauls incurred, in moving unfinished products into Official Territory and in the return of manufactured products, have been encouraged by the railroads because of the revenue incident to long hauls in both directions.[15] So long has the situation existed that it is considered "normal" by many that manufacturing is centered in one part of the country and raw-material production in others, despite the disastrous consequences to the economic welfare of the occupants of the regions restricted mainly to raw-material production, which in turn is reflected in the national welfare.

And what does the sectionalized freight-rate pattern have to do with the amount of transportation service required for marketing agricultural products? In the first place, the regionalized freight-rate structure is one economic factor that encourages a concentration of manufacturing production, with the accompanying masses of population, within the comparatively small area that is Official Territory. An examination of table 1 discloses that within the last 50 years this northeastern rate territory has held consistently approximately 51 per cent of the population of the United States. Although there has been a shift of population between the remaining rate territories, with Southern and Western Trunk-Line Territories losing and Southwestern and Mountain-Pacific gaining, Official Territory has steadily maintained its position.

[14] The Interstate Commerce Commission, on October 16, 1940, granted relief to rail carriers from Section 4 (long-and-short-haul clause) of the Interstate Commerce Act to allow removal of Zone IV differentials in Southwestern Territory. As yet the revised rates have not been published by the railroads.

[15] Malcolm Keir, Manufacturing, New York, Ronald Press, 1928, p. 145.

Measured by the value of manufactures in the last few decades, Official Territory occupies a much more important position, however, than when measured by population figures alone. From table 2 it may be seen that more than 70 per cent of the value of manufactures of the country are produced within Official Territory, with the production of the remaining 30 per cent being divided among the other rate territories. The largest value shown outside Official Territory is 12.86 per cent of the national total for Western Trunk-Line in 1909, but the relative value of manufactures for that region has declined steadily since that time. In Southwestern Territory the value of manufactures has not yet reached 4 per cent of the Nation's total.

In the second place, much of the raw-material and foodstuffs production is centered in regions of the South and West far removed from the populous Official Territory.[16] It follows inevitably that providing sustenance to the large proportion of the national population within Official Territory plus keeping their factories supplied with raw and semi-finished materials requires enormous amounts of transportation service.

The effect of moving the necessary agricultural products long distances into Official Territory is shown in table 3, which shows the average haul for each of a representative group of farm products produced in the United States, the average proportion of value at destination that is made up of freight charges, and the average freight revenue paid per ton-mile. Note that a number of products, including grapes, watermelons, and tomatoes, have over 50 per cent of their value at destination made up of transportation charges. The approximate average rail haul necessary to market these commodities in 2600 miles, 1100 miles, and 1900 miles, respectively. As has been stated before, if the average length of haul on these products could be appreciably lessened, the percentage of the value represented by freight revenue paid would be lowered.

Table 3 shows that all products of agriculture transported by rail in carloads received an average haul of approximately 513 miles as compared with about 353 miles for all railroad freight traffic. The relatively long haul is one of the reasons that freight revenue was 12.24 per cent of the value of agricultural crops at destination in

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[16] Agriculture produces over two-thirds, measured by cost, of the raw materials used in American industry. U. S. Department of Commerce, Materials used in manufactures: 1929, Washington, Government Printing Office, 1933, p. 4.

TABLE 3. DATA ON RAIL TRANSPORTATION OF AGRICULTURAL COMMODITIES
(In Carloads on Class I Steam Railways of the United States)

Commodity	Average haul (Miles)	Percentage freight revenue of value at destination	Freight revenue per ton mile (Cents)
Wheat	319.31	12.03	1.05
Corn	291.09	16.77	1.05
Oats	329.14	15.14	.93
Barley and Rye	276.72	16.66	1.06
Rice	320.33	5.63	1.31
Grain, N.O.S.[a]	505.00	13.59	.94
Flour, Wheat	568.65	8.01	.69
Meal, Corn	455.70	10.03	.61
Flour and Meal, Edible, N.O.S.	567.24	10.27	.74
Cereal Food Preparations, Edible, N.O.S.	627.46	3.23	.95
Mill Products, N.O.S.	407.74	10.24	.71
Hay and Alfalfa	374.55	39.40	1.38
Straw	209.87	55.92	1.75
Tobacco, Leaf	366.88	2.03	2.20
Cotton in Bales	410.52	3.78	1.80
Cotton Linters, Noils, and Regins	692.19	14.05	1.06
Cottonseed	—[b]	8.71	—[b]
Cottonseed Meal and Cake	—[b]	14.73	—[b]
Oranges and Grapefruit	2,125.80	47.48	1.25
Lemons, Limes, and Citrus Fruits, N.O.S.	2,386.73	32.25	1.09
Apples, Fresh	1,162.14	29.17	1.26
Bananas	694.35	12.98	2.17
Berries, Fresh	1,199.81	11.68	2.08
Cantaloupes and Melons, N.O.S.	2,433.89	48.31	1.18
Grapes, Fresh	2,597.36	62.41	1.15
Peaches, Fresh	842.52	29.55	1.82
Watermelons	1,084.14	59.66	1.15
Fruits, Fresh, Domestic, N.O.S.	1,754.19	39.58	1.26
Fruits, Fresh, Tropical, N.O.S.	1,519.22	18.03	1.22
Potatoes, other than Sweet	741.45	32.15	1.24
Cabbage	969.84	49.37	1.38
Onions	1,012.91	42.30	1.17
Tomatoes	1,893.57	50.26	1.33
Vegetables, Fresh, N.O.S.	2,063.31	38.36	1.28
Beans and Peas, Dried	888.21	11.36	1.08
Fruits, Dried or Evaporated	833.69	7.02	1.12
Vegetables, Dry, N.O.S.	688.84	24.67	1.34
Vegetable-Oil Cake and Meal, except Cottonseed	—[b]	10.59	—[b]
Peanuts	715.02	13.54	1.50
Flaxseed	304.34	4.72	1.25
Sugar Beets	46.63	11.58	1.37
Products of Agriculture, N.O.S.	426.50	5.17	1.17
ALL PRODUCTS OF AGRICULTURE	512.88	12.24	1.12
ALL FREIGHT TRAFFIC	352.98	8.43	1.03

[a] N.O.S. means "not otherwise specified."
[b] Data not available.

Source: Federal Coordinator of Transportation, Freight traffic report, Appendix I, 1935, pp. 74–75. Interstate Commerce Commission, Bur. Statistics, Statement 4045, October 1940, pp. 6–8, 18.

comparison with 8.43 per cent for all freight traffic. The freight revenue per ton-mile is also higher for agricultural products than for all freight: 1.12 cents as against 1.03 cents. Those advocating reductions in freight rates as a remedy will probably agree that substantial reductions in rates would be necessary to effect an appreciable change in the figures for farm products.

Farmers and Transportation Charges

It has often been said that the farmer pays the freight on both the products he sells and the ones he buys. That is, on the goods he purchases the price is stated to be the price at the manufacturing plant plus transportation costs (and other charges) incident to moving the goods to the farm. On the products the farmer sells the price is the price at the central market minus freight charges. If these assertions are true, it would seem that on industrial products the transportation costs are borne by the consumer, while on agricultural commodities the freight is borne by the producer. As Professor Locklin states, this cannot be true unless one economic law determines the price of manufactured goods and a different law determines the price of farm commodities.

The railroads apparently share in this inconsistent view because often when farmers attempt to obtain a reduction in freight rates they are informed by the railroads that the consumer bears the transportation charges; consequently, the producer would not bear the additional freight charge. On the other hand, when the consumer protests against rate increases he is told the price he pays will not be affected because the producer will absorb the increase.[17]

Such contentions will not stand the light of critical economic analysis. Transportation charges are part of the cost of production, and in the long run transportation cost, like other costs of production, must be covered by the price paid by consumers if production of the goods is to be continued.

As Professor Keynes has aptly stated, the long run is a misleading guide to current economic affairs because in the long run we are all dead;[18] so it is important to consider the effects of freight transportation on prices received by the farmer in a shorter period than the theoretical long run.

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[17] D. Philip Locklin, Economics of transportation, Chicago, Business Publications, Inc., 1938, p. 91.

[18] J. M. Keynes, A tract on monetary reform, London, Macmillan, 1923, p. 80.

Farmers as a group are interested in the comparative general level of rates on farm products, but the individual farmer is interested in the freight rate from the farm to the market in which his goods are sold. Investigation discloses that when economic forces have established a price in a central market, the amount received by the individual farmer will equal approximately the market price less the costs of transportation. This is known from price studies conducted by the United States Department of Agriculture in which these conclusions were drawn: (1) the price in an area of surplus production is approximately equal to the primary market price minus the costs of moving the product to the market; (2) the price in a deficit area is roughly equal to the price in the most distant area of surplus production from which the supply is drawn, plus the cost of transportation and handling.[19]

From these conclusions it may be seen that in the short run the farmer receives the market price paid in the central market minus the cost of moving the product to market. If the haul is long, even on a low basic freight rate, the net proceeds to the producer from the sale of agricultural products may be small. Manifestly there is a definite relationship between the average hauls of agricultural products shown in table 3 and farm income. That values at place of production do not automatically grow, like a rolling snowball, by the amount of freight charges the goods incur in movement,[20] is true of farm commodities.

From a Congressional report may be taken excellent illustrations of the effect of long hauls to market on the price received. The product was cabbage and the markets were in Official Territory. For cabbage produced in the Northeast the freight charges were 40.90 per cent of the wholesale price at destination; for cabbage from Southern Territory the transportation charge constituted 66.35 per cent of the price; on cabbage grown in Mountain-Pacific Territory the freight cost was 70.80 per cent; and on the product from Southwestern Territory, 75.12 per cent.

Similar data for onions sold in Official Territory disclosed that on onions grown within that territory freight expense constituted 30.83 per cent of destination value. On onions from Southwestern Terri-

[19] U. S. Department of Agriculture, Prices of farm products received by producers, Stat. Bul. 17, and Reliability and adequacy of farm price data, Dept. Bul. 1480, Washington, Government Printing Office, 1927.

[20] W. M. Daniels, The price of transportation service, New York, Harper & Brothers, 1932, p. 14.

tory 46.91 per cent of value was transportation costs; and on those from Mountain-Pacific, 57.06 per cent of the price was attributable to transportation.[21]

Corrective Measures Applied to the Freight-rate Structure

Professor Hoover indicated a remedy for agricultural distress when he designated as elementary that the primary hope of the South (the same is true for the West) is to reach a stage of industrial activity such that the supply of labor for agriculture would be diminished and the demand for agricultural products increased.[22]

It would be foolish to suggest that large blocks of eastern industrial concerns be transported to the agricultural regions south of the Ohio River and west of the Mississippi to bring about the needed industrial development. Likewise, it is impossible to move large numbers of southern and western farmers and their production into close proximity with the large industrial centers within Official Territory.

Although industrialization for the South and West should not be brought about by moving industrial concerns established by decades of hard work in Official Territory, the southern and western regions should be given opportunity equal to that allowed the northeast to develop industrial plants for converting indigenous raw materials. Few would deny the fairness of such a proposition.

One important step toward allowing the South and West more nearly equal industrial opportunity with the northeast is a revision of the present freight-rate structure. An economic basis for the adjustment would be to relate the general level of rates to the cost of rendering the transportation service. Such a change would allow the movement of industrial goods produced in Southern, Southwestern, Western Trunk-Line, and Mountain-Pacific rate territories on more nearly equitable terms than are allowed by the present rate structure, which is based on tradition rather than cost.

By encouraging industrialization in southern and western rate territories, a greater market for farm products could be created near the source of many of the commodities, thereby lessening the amount of transportation service that is now incorporated in their value. In other words, the presence of industrial centers nearby

[21] Report of the joint commission of agricultural inquiry, 67th Congress, House Report 408, 1922, Part III, p. 31.

[22] Calvin B. Hoover, JOUR. FARM ECONOMICS, February 1940, 22: 207–208.

would make it possible to lessen the long hauls that now cut into the income of the farm population. Likewise, increased industrial production would offer a new source of traffic to the railroads as well as jobs to surplus farm population.

Alteration of the present sectionalized freight-rate pattern alone would probably not bring about the desired industrialization of the agricultural areas, but such action would be a substantial factor in favor of industrial development in these regions with an accompanying increase in farm income.[23]

A circumstance that is further contributing to the plight of agriculture is the loss, in recent years because of war, of already curtailed foreign markets for American farm products,[24] but the discussion of this factor constitutes another subject and will not be taken up here. Nevertheless, loss of these foreign markets is making an already bad agricultural situation rapidly worse. One need scarcely say that to take additional decisive steps to correct the conditions facing the agriculture of the United States would redound not only to the benefit of the farmer but to the economy of the entire country. Encouraging industrial development in the agricultural areas by reforming the regionalized freight-rate structure would be an excellent first step.

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[23] The Interstate Commerce Commission now has under consideration a substantial portion of the freight-rate structure to determine its suitability for present-day use. See Frank L. Barton, The Interstate Commerce Commission considers the class-rate structure, The Jour. of Land and Public Utility Econ., Feb., 1941, 17: 10–16.

[24] A discussion of the influence of United States tariff policy on the foreign market for American agricultural products is contained in, T. W. Schultz, Vanishing farm markets and our world trade, New York, World Peace Foundation, 1935.

FARMERS IN A CHANGING WORLD: THE 1940 YEARBOOK OF AGRICULTURE. I

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ONE need do no more than dip here and there into the pages of this volume to be impressed with the magnitude of the task of its preparation. A major advantage of the volume lies in having between the covers of one book, no matter how heavy, a mass of important factual data bearing on American agriculture, present factors affecting it and programs now in operation dealing with its problems. The unevenness with which the separate topics are treated will result in some people lauding its merits while others deprecate the worth-whileness of the undertaking. The reviewer finds much to commend in the volume and feels that it should become a very valuable addition to many libraries, both private and public.

Disappointment concerning the volume is likely to be felt by readers, for one or more reasons, concerning issues of special interest to them. Scant attention has been accorded some topics; others that seem important have been omitted. Vital issues in some cases have not been sufficiently pointed up to stand out in the mass of detail provided. Although excellent documentation occurs in the history as well as some other sections, editors and authors have failed in some cases to make the reader aware of the source of facts and additional sources to which he might turn. The latter omission is especially important in the case of topics discussed briefly, for example the Food Stamp Plan. Some duplication of topics occurs, but it is hard to see how this could be entirely avoided. Generalities, often vague, and a failure to tie these to the issues to which the volume as a whole is directed or even to test their validity against or to appraise them in terms of existing circumstances are very conspicuous at times, for example in the topics "The Contribution of Sociology to Agriculture," "A Philosophy of Life for the American Farmer," "Cultural Anthropology and Modern Agriculture," and "Education for Rural Life." In some topics wishful thinking and cliches are often substituted for facts and systematic thinking. What, on the surface at least, appears to be contradictions is a natural result. For example, the idealization of farm life expressed in a statement by Hocking, "For the country breeds a type of man

in whom natural virtues are ingrained . . . the city type . . . is in reality a parasite and could not survive were not the foundation there to sustain it." (p. 1066) stands in contrast with a statement by Turner, "Especially noteworthy is the fact that the great ethical movements calling upon men to realize new forms of justice were always far more urban than rural in origin and diffusion." (P. 1005.) Discussion of some topics will leave the reader, who looks past the traditional form to the substance, with a sense of superficiality of treatment. For example, the article on "Democracy in Agriculture —Why and How?" which in fact deals largely with sampling techniques to discover attitudes to administrative problems seems to oversimplify the process of democracy to a point of being misleading. The process of how values directing social action evolve seems very feebly shown, the discussion of it bearing echoes of the "horse-and-buggy" days when all people involved met face to face to resolve issues.

A volume of more than 1200 pages, including apart from foreword and summary 55 articles ascribed to 72 authors, cannot fail to challenge speculation concerning the forces that went into its making. How, for example, were the topics selected? Because they focused directly on vital issues, concerning which facts and interpretation should be set before the public? Or because they conformed to existing fields of specialization which along with many other things resist change? Adherence to the mold of longstanding professional specialization, which only vision and dynamic leadership can break through, seems the only way of explaining the absence of systematic coordinated discussion of excess farm population and its absorption into urban employment. Again and again this need is mentioned as one of the pressing problems, yet the longest single discussion of it, noted by the reviewer, was confined to three pages. The suggestions made for dealing with migration from the farm held no hint that research in industrial location or modification of transportation rates might aid in solving the problems nor was the significance of monopolies of many kinds restricting expansion of industries given consideration as means of opening up opportunities for labor now in agriculture.

Professional specialization may also account for the absence of an article devoted to problems involved in making full use of productive resources. Again and again the discussion makes clear that the welfare of agricultural families and the size of agricultural income,

both money and real, is tied up with the functioning of the economy as a whole. Hoffman and Waugh in their article "Reducing the Costs of Food Distribution," state, "The fundamental problem of how to give full and productive employment to all economic resources is beyond the scope of this article." (P. 636.) It appears in part also to have been beyond the scope of the entire of the entire collection of articles in that many inter-industry relationships appear to have been very inadequately discussed.

In spite of the attention being given at the present time by the Temporary National Economic Committee to monopolies in food industries, the heightened activity of the Anti-trust Division of the Department of Justice and the claim made by many agriculturalists that the farmers are getting too small a share of the consumer's dollar, practically nothing is said about the bearing of monopolies on agricultural income. The Sherman Anti-trust Act received only brief mention in the history section on the development of trusts.

With industrial controls of many kinds becoming more powerful it becomes increasingly important for society to seek ways of resolving the dilemma of scarcity from the standpoint of the consumer existing side by side with "over-production" from the standpoint of the major industries. The reviewer would like to suggest that the 1941 Yearbook of Agriculture be devoted to the theme "Making full Use of Agricultural Resources"; and that this theme be considered in the setting of the entire economy.

The selection of topics and their treatment are without doubt influenced by the fact that this is a government publication coming from a department with an extensive action program. Bias in topics, some of it probably unconscious, appears in spite of the introductory statement to the effect that "The book does not represent official policy, . . . and the reader will sometimes find official policies treated with skepticism, controversial viewpoints defended, and things discussed that do not enter into any policy." (P. 2.)

The omission or inadequate discussion of the following topics may be laid to a desire to soft-pedal criticisms or to indulge in wishful thinking: (1) difficulties so far encountered in the agricultural programs in making a bureaucracy function efficiently, that is, with good judgment, speed, flexibility, and without excess personnel and in conformity with the democratic tradition; (2) the influence of pressure groups at times representing wholly or mainly the higher income groups who may seek to concentrate benefits on

themselves; (3) the extent to which benefit payments now being made go to the higher income farmers; (4) the failure of some parts of the program to function according to design, for example to restrict the volume of products; (5) the distortion of parts of the agricultural program from other than avowed purposes, for example, the efforts to use the "ever-normal granary" plan to raise farm income apart from the benefits that would come from evening out the flow of supplies from year to year; (6) the fallacious character of some of the slogans used as a basis of some demands of agricultural groups, for example the principle of parity income which, if applied to all industrial groups on the same basis as is used by agriculture, becomes an absurdity; (7) the tendency of action agencies in agriculture, for example the Agricultural Adjustment Administration, to act independently of the research bureaus of the Department, to adopt an attitude that their job is to put a program across using methods that serve that end even though statements made to farmers in order to secure desired cooperation are considerably distorted from the point of view of the research findings.

It is rather difficult to understand why food advertising is not discussed. It did not rate enough space to warrant a heading in the index. Yet one food industry after another with farmers cooperating has in recent years launched food advertising programs, some of them state sponsored and most of them financed by levies authorized by legislators. Had a more systematic treatment been given to changes in food preferences responsible for many shifts in production, some interesting information might have been provided bearing on the possible effects of various advertising programs.

The volume leaves little doubt that the process of social change is going to continue, that agriculture functions as a part of a very complex economy, that farmers are faced with a multitude of new organizations and social machinery. It gives less help than it might to focusing attention on the use of resources, both agricultural and other, so that these contribute fully to the welfare of society as a whole. The story of American agriculture so ably told should, it would seem, aid us in understanding forces affecting society. But the future lies before us not behind. Clearly continuous courage and effort is needed to be freed from the burden of maintaining status quo both of property values and labor.

Defects due to oversight, inadequate scholarship or field research can be overcome by the United States Department of Agriculture

as well as by any other agency that might deal with the issues under consideration, or perhaps even better. Gaps in analysis occurring because some discussion would not be politic are of a very different type. While the volume as a whole testifies to the competence of the editors and authors, one section after another proclaims the need for independent research and publication in every corner of the country. It seems highly probable that such independence is necessary even to ensure that agricultural policy moves in the direction envisioned by many within the Department itself.

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FARMERS IN A CHANGING WORLD: THE 1940 YEARBOOK OF AGRICULTURE. II

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THE 1940 Yearbook of Agriculture, "Farmers in a Changing World," is required reading for all social scientists interested in agriculture. All social scientists should at least read the excellent 100-page summary by Mr. Hambidge. Farmers, farm leaders, administrators of agricultural programs, legislators and educators will find this book invaluable for its discussion of the social and economic problems of agriculture and as a source of factual material concerning this basic industry and mode of living.

Neither an adequate summary nor a fair apprasial of this book can be presented in a brief review. In lieu thereof, a few impressions may be recorded for the purpose of directing and stimulating interest.

One is impressed, upon reading this book, with the increase and improvement of our knowledge concerning agriculture. We not only know more about agriculture as a whole than we ever have before but we have also gained specific and detailed information regarding its many sectors. We have, moreover, established the machinery for obtaining this information currently or regularly so that many, if not most, of our agricultural policies may be tested by their effects. We have come to know a great deal about the history of agriculture, both as an industry and as a way of life. This has given us a perspective regarding its contemporary problems that we have never had before and has given us an appreciation and understanding of the many forces—technical, political, economic, social and psychological—which have influenced its development and shaped its destiny. This information has given us a clearer picture of the position occupied by agriculture in the national and world economy. We have come to realize too, how dependent our society is, not only upon our agricultural economy, but also upon farms as the source of half of our future citizenry. Under these circumstances, the future physical and mental health and well-being of the nation depends upon the social and economic conditions in which farm children are now living.

The many chapters devoted to the current problems of agriculture and the efforts to solve them remind one forcibly that the

United States Department of Agriculture is one of the largest administrative, regulatory and research organizations in the world. The problem of, and the need for, coordinating all these activities is correspondingly great. The problem of correlating the many programs directed toward similar ends and conducted by the Department itself is immense, but these programs must also be coordinated with those of other federal departments and of other public and private agencies. The opportunities for misunderstanding and for gaps or duplication of effort are legion. We should bear this in mind during the troublesome years which lie ahead.

The problems of regulation and administration of numerous and diverse programs are difficult enough when the ends toward which these activities are directed are clearly defined and similar, or are at least not inconsistent with each other. When the ends sought conflict the problem is well-nigh insuparable. Mr. Hambidge faces this issue frankly when he says, "The conflict can be simply put: On the one hand we push forward agricultural efficiency, with the inevitable consequence that fewer people are needed for production; on the other, we advocate inefficiency, or at any rate tolerate it, by an extension of subsistance farming as the only way to take care of those who are displaced by improved techniques." How can we reconcile price-raising measures with others designed to control surpluses; or, for that matter, how can we reconcile soil conservation and improvement, with its inevitable tendencies toward greater production, with efforts designed to alleviate our surplus problem; or our desire to eliminate duplication in our marketing machinery with our fear of monopoly? More fundamental than these perhaps is the conflict between our desire for liberty and the necessity of organization in modern life. These ends are not necessarily inconsistent or incompatible, but so long as they continue to be the implicit (rather than explicit) objectives of agricultural policy they compel administrators to define the line which separates the desirable from the undesirable, the socially or economically accepted from the unacceptable. This creates distrust both of motives and of actions. This problem could be minimized by legislators and by those who formulate agricultural policy through clear and explicit statement of the ends sought and through the establishment or formulation of standards designed to govern or guide administrators and to furnish criteria by which the courts and, in the last analysis, the people themselves may appraise these elaborate administrative processes.

In the absence of such standards or clearly and explicitly stated ends, many activities will be at cross-purposes and there will be confusion, doubt, distrust, and, in extreme cases, conflict. The tempo of change is so rapid in modern life and the changes are of such magnitude that new modes of thinking, new attitudes and new or drastically altered institutions are frequently required to cope with them. But these new ideas and institutions come into conflict at many points with established habits, customs, traditions and institutions and with deeply rooted ideas of right and wrong. One of the many virtues of this book is the recognition throughout that there is room for honest disagreement in regard to many policies and that "much more is needed to solve our agricultural problems than convincing schemes in the field of economics." The existence and importance of these mental conflicts and honest doubts is explicitly recognized and sympathetically treated in Mr. Wilson's article "Beyond Economics" which to this reviewer was the highlight of the book. It is encouraging to note too that these differences are recognized as inherent, necessary and generally desirable attributes of the democratic process.

Let us hope that we may continue to approach and deal with the social and economic problems of agriculture, and indeed with all of our social and economic problems, in the spirit in which this book, on the whole, has been written, that is, in the scientific spirit and as an honest effort to contribute to economic democracy in these United States.

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FARMERS IN A CHANGING WORLD: THE 1940 YEARBOOK OF AGRICULTURE. III

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THIS YEARBOOK is a production of economists and other specialists in the social sciences chiefly employed in the Department of Agriculture; it includes analyses of data and interpretations as well as of previews of things to come. In a review of limited scope, the reviewer has the choice of picking holes in the detailed positions of particular authors or of taking a more general view. The latter approach raises this question: What is the general position of the specialist in the social sciences in helping to shape agricultural policy—now and as it emerges? This is a real problem of vital concern, not only to agricultural economists and other social scientists but also to the national welfare, granting that social scientists do have something to contribute.

How are policies determined? How much will the airing of the various views, as set out in this book, have on future policies? What is the role of the specialist? Actually, policies are decided by Congress, by legislatures, and by executive influences on the legislative process; details are decided by administrators. These are influenced by all sorts of forces—personal prejudices, pressure groups, labor unions, farm organizations, various informed or misinformed people. What is the role of the expert or specialist in this process? Take the case of the tariff. How far has Congress been guided by expert economic opinion that the economic welfare of this country depended on lower import duties? The answer would have to be in the negative. One cannot read this collection of essays without getting a feeling that some of the authors believe that some of our present agricultural policies are not as good as they should be. How can this situation be corrected?

An agricultural economist in one of our leading research institutions says: "Publish results." Presumably the collection of essays under review represents this sort of solution: publish ideas. But who will read them?

Perhaps Doctor Taeusch has the solution. (See pp. 1111–1124.) Get people to talk it over. This review is being written in an interlude in one of the efforts to do this. In the next room, a group of Iowa men and women are talking it over, and in a minute they will

be back to question the speaker. That would seem to be a more effective way to get ideas into places where they can influence policy than mere publication, provided enough people can be reached. In other words, if the expert is to make his ideas effective, he must get them out into the arena of discussion where people's minds are influenced. However, this position more or less begs the question, for but few specialists have an opportunity to do this, and even these can reach but few people.

This raises another question: Can the expert maintain his objectivity when he begins to advance his ideas by other means than simple publication? In becoming an advocate of causes, can he still be scientific? Obviously, it becomes more difficult to be strictly objective and to avoid being influenced by subjective considerations. This is particularly difficult to judge when social policy is concerned because there may be real differences in judgment as to the valid objectives of policy. Clearly, the specialist, if he is to retain his standing, must have justifiable objectives in the matters for which he argues, and he must be rigorously objective in his interpretations within whatever theoretical framework these objectives impose. An analysis of all of the essays included in the volume under review from these two points of view would be of interest. But space in this review does not permit such an analysis.

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ORGANIZATIONAL PROBLEMS OF AGRICULTURAL LABOR UNIONS

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TRADITIONALLY in the United States, labor unions have been largely urban phenomena and until recently have been almost unknown on farms. This was in sharp contrast to Europe where influential unions of farm workers could be traced back to at least the 1880's, and where such groups had about three million members in the early 1920's.[1] In the past decade, however, this country has seen the rise of unions of agricultural workers which have won some successes and have shown promise of continued development.

Numerically these groups are still small, having a total dues-paying membership of less than 100,000. This is a small fraction of the approximately four million agricultural wage workers (sharecroppers as well as paid farm laborers) in the United States. But this movement's importance is greater than that indicated by dues-paying membership alone. For one thing, such unions have considerable prestige among large numbers of workers who do not belong to them. In October 1939, for instance, the CIO union reported that it had approximately 2,500 members in all of California yet at this same time it was leading a strike of about 15,000 cotton pickers in the San Joaquin Valley.[2] Furthermore, this movement has enlisted and received aid, financial and otherwise, from important urban groups.

Unions of farm laborers in this country first attracted notice in the years 1909–18 when the IWW achieved some strength among migratory wheat harvesters and fruit workers. The "Wobblies" had been preceded in their efforts by local groups in California—usually organized on a racial basis,[3] by the sheep shearers in the Mountain States, and by the AFL which made some weak organizational efforts along the West Coast in 1909 and for some years afterwards,

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[1] For a brief description of the farm labor movement outside the United States, cf. Louise Howard, Labor in agriculture, Humphrey Milford, London, 1936, pp. 171–186.

[2] I am indebted to Stuart M. Jamieson of the University of California for this information.

[3] For a history of farm labor union efforts in California, cf. Carey McWilliams, Factories in the field, Little Brown, Boston, 1939.

but without much success. With the practical destruction of the IWW during the first World War, farm labor unionism was almost non-existent during the 1920's, but became a force of some importance in the 1930's.

One indication of the progress of these unions is provided by the data shown in table 1.

These data must be interpreted with some care since for the early years, particularly, they are incomplete. Nevertheless—in the absence of reliable data on membership—they provide at least a rough barometer of the fluctuations in farm union activity since 1927.

TABLE 1. STRIKES OF FARM LABORERS IN THE UNITED STATES WITH NUMBER OF WORKERS INVOLVED AND NUMBER OF MAN DAYS LOST, 1927–1939

Year	Strikes	Workers involved	Man days lost
1927	2	322	694
1928	4	410	2,770
1929	0	0	0
1930	5	2,905	26,060
1931	5	2,020	15,225
1932	10	1,762	28,687
1933	35	34,012	516,900
1934	27	25,943	244,753
1935	19	14,888	139,494
1936	28	15,360	259,120
1937	28	5,080	32,842
1938	34	11,023	94,040
1939	25	26,207	194,880

Source: Bureau of Labor Statistics.

These data indicate clearly the sudden rise beginning in 1930 and reaching a peak in 1933.

Motives for farm workers' unionization are not difficult to discern. As a group, these laborers have income and living standards among the lowest in the country. Weak, economically and politically, they are almost universally excluded from the benefits of Federal and State social legislation—such as the Wagner Act, the Social Security Act, and Workmen's Compensation laws,—which have aided urban workers greatly. In part, this discrimination has been caused by technical difficulties in the way of administering such laws under the peculiar conditions existing among farm workers, but much more important seems to have been the activity of farmer pressure organizations which have opposed inclusion of agricultural laborers in these reform measures. Urban unions have progressed as workers have realized the need for their own organizations to

protect their economic and political interests. An analogous need would seem to exist for unions of many farm worker groups, but thus far their progress has been slow.

Some of the more important causes for this lag of field worker unionization may be indicated briefly: (a) In the past, many farm workers have been "hired hands" working for a family farmer; they have regarded themselves as being on the first rung of the agricultural ladder rather than as permanent rural proletarians requiring unions for protection. Even where workers have had little hope of rising to higher status, their close personal relationships with their employers, and their dispersion in groups of one or two on many farms have prevented any united action. (b) On large, capitalistically operated farms employing many workers who have no personal employer relationships or hope for advancement, union growth has often been hampered by the heterogeneity of the laborers. These have been separated by barriers of language, color and race. On the other hand, where workers of one racial group have been employed their homogeneity has aided the formation of an organization for mutual protection. (c) Until recently, organized urban workers showed little concern regarding unionization of their country brothers. The AFL craft unions—before 1933, at least—showed little interest in organizing the low paid, unskilled labor even in basic industries such as automobile and steel, let alone in working with the analogous group on farms. Where some efforts were made—as in California in around 1910[4]—it was quickly obvious that traditional AFL techniques, built up for organizing relatively highly paid, skilled, and immobile urban workers were not suited for low paid, largely unskilled, and highly mobile farm laborers. (d) In recent years, employer opposition—expressed in such groups as the Associated Farmers—has been an important factor hindering union advance.

Progress by the farm labor union movement since 1929 may be explained in these terms: The onslaught of deep agricultural depression sent wages and living conditions of farm workers down to almost unparalleled lows. This resulted in spontaneous strikes and organization which were then further developed by leaders drawn from urban groups, particularly Communists and Socialists.[5] The

[4] J. C. Folsom, Farm laborers in United States turn to collective action, Yearbook of agriculture, 1935, p. 190.

[5] Sidney Sufrin, in his article, Labor organizations in agricultural America, Amer. Journ. Soc., 48(4): 549–550, has denied the importance of radical leadership in these

New Deal, although careful to exclude farm labor from the provisions of its legislation, nevertheless created an atmosphere in which all kinds of labor organization flourished. Since 1937 one section of organized urban labor, the CIO, has given substantial financial and other aid to the movement to organize farm workers.

Without entering into a detailed history of farm labor unionism the activities of the following groups may be indicated: (a) Among the earliest organizations were those of Mexicans, Filipinos and other alien groups; some of these still exist either as independent entities or as affiliates of some larger body. (b) From 1930 to 1933, the Communist-dominated Cannery and Agricultural Workers Union had some success in California where it led several successful strikes. It disappeared after the arrest and imprisonment of many of its leaders in 1934. (c) The Sharecroppers Union of Alabama was founded in 1931 by Communists and organized several thousand sharecroppers and day laborers, most of them Negroes, in attempts to raise wages and secure better conditions, particularly under the AAA.[6] It merged with the Alabama Farmers Union in late 1936. (d) From 1933 to 1937 many local unions were formed in California, Florida, Southern New Jersey, Ohio, Texas, Colorado, Montana, and other areas. In a survey made during this period, Sufrin found 98 local agricultural worker unions, 54 of which—including most of the larger ones—were affiliated with the American Federation of Labor.[7] (e) Arkansas tenant farmers organized the Southern Tenant Farmers Union in 1934. This soon spread to neighboring states, being aided greatly by Socialists and liberals.[8] By early 1937 it claimed some 30,000 members.[9] The Union conducted several strikes of cotton pickers and choppers, and fought what it alleged to be unfair treatment of tenants and sharecroppers as re-

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early union and strike movements. Convincing evidence of the vital role played by Communist organizers can be obtained by perusal of the following articles in The Communist, official theoretical organ of the party: United States agriculture and the tasks of the Communist Party, April 1930; H. Puro, The task of our party in agrarian work, February 1931; H. Puro, The American farmers are beginning to fight, September 1932; Harrison George, Causes and meanings of the farmers' strike and our task as communists, October 1932; H. Puro, The class struggle in the American countryside, June 1933; H. Puro, The farmers are getting ready for revolutionary struggles, June 1934; and Donald Henderson, The rural masses and the work of our party, September 1935.

[6] Nat Ross, The next steps in Alabama and the Lower South, The Communist, October 1935, pp. 968–976.

[7] Op. cit., p. 548.

[8] Howard Kester, Revolt among the sharecroppers, Covici-Friede, New York, 1936, pp. 57–58.

[9] Proceedings third annual convention Southern Tenant Farmers Union, p. 62.

gards AAA Benefits. (f) In 1935–1937, several federal AFL locals cooperated in an informal organization which sought to coordinate their efforts while they waited for an organizational charter to be granted them by the Federation. They published the Rural Worker and El Organizador Agricola for propaganda purposes, and fought the AFL requirements for dues and town-centered locals on the ground that these hampered organization. (g) At Denver in July 1937, representatives of AFL locals in the agricultural, cannery and related fields met with delegates from the Southern Tenant Farmers Union and various independent groups to form the United Cannery. Agricultural, Packing and Allied Workers of America (better known as UCAPAWA). They voted to affiliate with the CIO and admit as members: "All types of agricultural workers, all fruit, fish and vegetable canning and packing workers, all horticultural workers and workers in allied fields."[10]

Today the UCAPAWA is the leading organization in its field but even its strength is not great since far more than one-half of its alleged 125,000 members are in non-agricultural occupations. It is strongest in California among the migratory workers, and in the Mountain States among the beet sugar workers; also, it claims some strength among cotton workers in the South, but this is more questionable. The Southern Tenant Farmers Union split from the UCAPAWA in early 1939 and was almost destroyed by that division, but it has recovered some ground since. In 1940 it claimed to have 90 functioning locals[11] as against 326 in 1937.[12] since its formation in 1934, the STFU has undergone a transformation, and today over 75 per cent of its members are day laborers whereas, in 1934 90 per cent were either tenant farmers or sharecroppers.[13] At its 1940 Convention the STFU voted to undertake organization of migratory laborers outside the South, thus expanding into a full-fledged rival of UCAPAWA, but lack of funds has prevented any activity in this direction. The American Federation of Labor has a number of locals of agricultural workers, particularly in the California citrus fields. Some of these have clashed with the UCAPAWA in representation cases before the National Labor Relations Board.[14]

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[10] Official Proceedings. First national convention of United Cannery, Agricultural, Packing and Allied Workers of America, p. 57.

[11] STFU, President's and Secretary's Reports 1940, p. 11.

[12] Proceedings third annual convention Southern Tenant Farmers Union, p. 62.

[13] H. L. Mitchel, The sources of the grapes of wrath, presented before the House Committee on Interstate Migration of Destitute Citizens, August 14–16, 1940.

[14] Report of the proceedings of the fifty-ninth convention of the American Federation of Labor, pp. 59–60.

Besides a scattering of independent, local groups of which no census is available, the only other important organization in this field is the Louisiana Farmers Union which has organized sugar cane workers and cooperated with UCAPAWA.[15]

Besides demanding wage increases, and union recognition, in local situations, these various groups are seeking two main objectives: Inclusion of agricultural workers among the beneficiaries of Federal and State social legislation, and amendment of the AAA, so that benefit payments to growers of all crops would be made conditional upon payment of minimum wages to workers and observance of other labor conditions set down by the Secretary of Agriculture as in the present Sugar Act.

Developments over the past decade have made certain organizational problems apparent to those who have watched the attempts to unionize farm workers. These problems are of interest to the agricultural economist because on their solution may depend the progress of farm labor unions, and hence their impact upon the nation's farm economy. These problems center about three main foci: jurisdiction and structure, finances, and leadership.

The structure and jurisdiction of UCAPAWA provide a case in point. A union seeking to embrance all farm laborers alone would have a tremendous scope. But, in addition, UCAPAWA also embraces workers in many other fields and today includes such diverse agricultural groups as grave diggers, fish canners, clam diggers, pecan shellers and others. This broad jurisdiction has already caused disputes between UCAPAWA and the CIO's Fisherman's Union. Its adoption at the 1937 convention can be understood only against the historical background. The early strikes in California, New Jersey, and elsewhere taught leaders of the farm laborers that cooperation of workers in fields, packing sheds, and canneries was essential for successful action. Furthermore, many of the migratory farm laborers also work at various non-agricultural occupations such as fish canning at some time of the year. For these reasons it seemed desirable to have this wide jurisdiction for a union aimed primarily at organizing agricultural laborers.

But once the CIO had granted this broad field for UCAPAWA activities, complications arose very quickly as successful unionization was accomplished in packing, canning and other plants having little or no connection with agriculture. Hence the UCAPAWA has

[15] O. E. Mulliken, Agricultural labor in the sugar industry. Presented before the Senate Committee on Education and Labor, May 20, 1940.

become a sprawling, multi-industrial union composed of many diverse groups, each with radically different problems. All this has made unified planning and activity among different locals almost impossible, and the national officers of the union have found themselves forced to cope with widely different conditions in many unrelated fields. Because of the greater success encountered by the union in its organizational work among non-agricultural employees, the emphasis in its activity has tended to shift away from farm laborers who once were its main concern.

However, a union of farm workers alone would have difficulties. Agriculture is really a group of different industries, each with its own set of conditions and problems. Southern sharecroppers and Rocky Mountain beet workers have relatively little in common as a result. And when we add to the substantial differences among groups of farm workers, the even greater heterogeneity of the non-agricultural members of UCAPAWA, we see a union structure that requires drastic modification if all elements included are to have a union that will serve them well.

Theoretically, it might be desirable to separate the farm workers from the non-farm workers in UCAPAWA and form at least two unions. Two practical difficulties immediately arise: Many workers still migrate between different industries; how are they to be kept in the union if its scope is limited? Moreover, UCAPAWA's chief strength is in the non-agricultural field so that the farm locals alone would form a very weak organization indeed. The first obstacle might be overcome by a system of transfers between unions in different industries, permitting workers to join one and then shift their affiliation as they change occupations. For a separate farm worker union to be feasible, all existing groups of this kind would have to merge, and even then they might not be strong enough. But so long as the present leaderships remain at the helms of UCAPAWA and STFU, it seems idle to speculate on a reunification of the two groups. If unity were to be achieved between the AFL and the CIO, this might be accomplished, but that first prerequisite offers no promise of near-reality at this writing. As a matter of fact, the STFU has applied to the Federation for a charter as a national farm workers union—as previously mentioned—and this is a step towards more violent conflict.

Supposing for the moment that such an independent farm workers' union could be set up, however, it might be desirable to divide

this entity into several autonomous divisions, perhaps one for cotton, one for sugar, or one for fruits and vegetables. This would permit coordination of effort in each relatively homogeneous field. UCAPAWA already has made some beginning in this direction.

The problem of local organization is also rather thorny. The traditional union local has been a very immobile organization satisfying the needs of workers who were themselves not very mobile. Such an organizational form is not well adapted to serve migratory workers who have been unionized, although it may be satisfactory among farm workers—such as Southern sharecroppers—who are less mobile. Thus if a local of grape pickers is organized near Lodi, California, during the harvest, it is likely to disappear soon after the job is finished and the workers have dispersed. These migratory workers would seem to need a flexible and mobile union structure permitting them to cooperate with each other at each new job, or in the cities where they hibernate each Winter. Organizers must travel and work with the union members and prospective union members as did IWW organizers who dealt with the same type of membership.

Organization is complicated also by racial, national, and color differences. Can native white Americans be organized into one group together with Mexicans, Filipinos, Negroes, and Chinese? Or should each element be organized separately? This problem has been most acute in California, but has arisen in the South, New Jersey, Michigan, and other areas. The STFU has adopted the policy of organizing Negroes and Whites together, while UCAPAWA, having a greater diversity of groups to work with, has avoided setting any inflexible policy, but has organized each particular situation on the basis of its special problems and circumstances. It must be remembered that the difficulties in this connection arise not only from antipathies between racial groups, but also because traditionally, different treatment—as regards wages, types of work assigned, and living conditions—has been given to different groups.

It is already clear that farm labor unions of migratory workers of many races cannot have the same type of close discipline and stable organizational structure that have characterized older urban unions, especially those of relatively well-to-do skilled workers. If the experience of the past decade is any guide, it seems probable that among the migratory workers only a small percentage will be directly affiliated dues-paying members. The union's real strength

will depend upon the confidence and prestige it can win among the workers. The union members themselves will serve as non-commissioned officers, mobilizing the rest of the workers in any specific action. A more stable organizational form, closer to traditional union types, can be expected in the areas where workers are less migratory, for example among sharecroppers who have yearly tenure, and among the sugar beet workers who operate the same plot of ground for several months and frequently remain in the same neighborhood all year round.

An omnipresent problem facing all attempts at farm worker unionization is that of finances. Unions canot be built on good intentions alone. Organizers must be paid at least a minimum salary; offices must be maintained; literature must be prepared and distributed; all these and other activities require funds; enthusiasm and self sacrifice are not enough. But agricultural workers, in general, are poorly paid and cannot afford to pay steady dues, even when these are quite moderate. Further, farm workers have little experience in group action, and see little reason to continue paying to an organization which is not doing something for them at that very time, although it may have brought them substantial benefits in the past. This last situation has been especially prevalent in recent years among the sugar beet workers belonging to UCAPAWA. Things got so bad that at the 1940 convention of the union's Rocky Mountain district, Donald Henderson, President of UCAPAWA, had to appear and threaten to cut off all aid given by the national organization, unless an improvement in the dues-payment situation took place quickly.[16]

Farm worker organization has probably never been self-supporting. In the UCAPAWA, the national organization has usually returned all dues paid by its locals in agriculture for their needs, and supplemented this with extra thousands of dollars. The STFU situation can be realized when we know that in 1939 and 1940, both typical years, only about 15 per cent of the national budget was obtained from members' dues.[17] Tens of thousands of dollars have been spent in the attempt to organize agricultural laborers during the past decade, but very little has come from the workers themselves. It seems likely that the Communist Party financed the early efforts of the Sharecroppers Union and the Cannery and Agricul-

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[16] UCAPAWA News, April 1940.
[17] President's and Secretary's Report, 1940.

tural Workers Industrial Union. Since its inception, the STFU has received aid from urban Socialists and liberals who have sponsored an annual Sharecroppers Week for fund-raising purposes. In 1940 $5,000 was raised by this method alone.[18] From 1933 to 1937, the isolated AFL locals were aided greatly by Committees to Aid Agricultural Workers which were organized in New York, Washinging, Philadelphia, and other cities. One prominent individual alone contributed approximately $2,500 annually for several years until his death some months ago. In the last three years UCAPAWA's financing has come mainly from such urban groups, from the CIO, and from dues paid by its non-agricultural members. At a meeting of the union's Executive Board in October 1939, however, it was voted that no surplus remaining from the dues of non-farm workers be employed in agricultural organization. Funds used for the latter purpose, it was decided, will have to come from the farm laborers themselves, or from outside donations. Hence future UCAPAWA activity in the farm lands depends largely upon the generosity of outside contributors, but this seems to have diminished in recent years for various reasons, not least of which is the schism in liberal circles caused by the Russo-German pact.

A third major problem is that of leadership, and this too is vital. Even the small progress that has been made would have been impossible without skillful organizers. Many of these, we have already indicated, came from outside the ranks of the farm workers, and were frequently leftists of various shades of red.[19] We must emphasize, however, that the great majority of agricultural workers belonging to unions have no connections with radicalism, but are interested solely in improving their lot through collective efforts.

These radical leaders have both aided and hurt the progress of farm labor organization. There seems little doubt that these individuals have labored earnestly for the farm workers' cause. They have provided experienced guidance which has been of tremendous importance. Without them, it is unlikely that the agricultural labor movement would have achieved any success at all in the past decade.

But these leaders have been definite liabilities from other points

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[18] *Ibid.*

[19] It is interesting to note in this connection that Donald Henderson, President of the UCAPAWA today, was an instructor in economics at Columbia University until June 1933, and then suddenly appeared a year later as a farm labor organizer in Southern New Jersey.

of view. Their known radical affiliations have helped inflame public opinion against farm worker strikes, thus promoting the growth of vigilante violence. At times they have put the interests of farm workers second to those of the political organization to which they owe allegiance. A review of the events leading up to the STFU-UCAPAWA split, for instance, leaves little doubt that factional strife between Communists and Socialists was an important element in bringing on the division. Should this country go to war in the near future, the fear of subversive action by these leaders may lead to governmental destruction of farm labor unions through wholesale arrests of their leaders. This was the fate of the IWW in the last conflict.

The necessity for such outside leaders in the past is obvious if we consider the low economic status of agricultural workers, their educational deficiencies, and the very few opportunities they have for development of any leadership qualities they may possess. But for future progress, farm labor unions must have more and more leaders emerging from the rank and file, if for no other reason than that outsiders are not coming in to the work any more. Hence the educational efforts of both UCAPAWA and STFU are of the first importance. The former held three regional schools during early 1940 in the South, California, and the Rocky Mountain area. At each school rank and file union members who had shown ability received training for several weeks in the economics of their area's agriculture, trade union history, problems and strategy, and propaganda techniques. Similar activities on a less extensive scale have been carried on by the STUF. Both groups also try to raise the educational level of their general membership by encouraging local programs aimed at this objective and by preparing material for these. It is from farm workers so trained that future leadership will have to come if their union movement is to advance.

Faced by such problems—and by the uncertainties bred of the European conflict—farm labor unions have a difficult path ahead of them. Their future, one suspects, will depend much upon these factors: first, the fate of Britain with which is linked so much of our destiny in every field; second, the attitude of the Federal government toward including farm workers in present social legislation; and third, the degree of success the unions have in meeting the problems herein discussed.

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A NEGLECTED POINT IN THE ECONOMICS OF SOIL CONSERVATION*

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THE problems of soil conservation has been given increasingly more attention in discussion of agricultural policy. In early discussions there seems to have been an inclination to overlook the economic aspects of soil conservation. This situation no longer exists. On the contrary economic implications of erosion control and land-use have been given a prominent place in recent literature. There has arisen some disagreement as a result of the approaches developed. For instance, Eric Englund recognized the unemployed resource situation and found reason to recommend increased conservation,[1] and Walter W. Wilcox with the same circumstances in mind had arrived at a quite different appraisal.[2] These studies indicate a need for a continuation of the discussion of economics of soil conservation.

We might distinguish at least two different schools of thought in these discussions. Writers of the first school of thought employ the classical assumption of free competition and perfect foresight[3] and hold that "conservation is achieved when the marginal return of a unit of a factor of production invested in the maintenance of agricultural land equals the marginal return from the best alternative use."[4] In accordance with this concept the conclusion is that conservation or exploitation is economic for society, when it is economic for the individual.[5] We do not suggest that this harmony is not derived logically from the indicated assumptions. On the contrary this harmony of individual and social interests in soil conservation is in accordance with the presupposition. However, in reality we

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[1] What price conservation? Land Policy Rev. 3(2), March–April 1940.

[2] Measures needed to achieve conservation and efficient production. JOUR. FARM ECON., 21(4), Nov. 1939.

[3] Presumably assuming perfect mobility and devisability of the factors of production as well.

[4] Walter W. Wilcox, *ibid.*, footnote p. 864. See also the same author, Economic aspects of soil conservation, Jour. Pol. Econ., 46(5): 704, Oct. 1938.

[5] "In the case where exploitation is economic for the individual when all costs have been included it is also economic for society." A. C. Bunce, Time preference and conservation. JOUR. FARM ECON., 22(3): 542, Aug. 1940.

have to deal with conflicting opinions and interests between different entrepreneurs and between the members of society with regard to land-use, or anything but harmony. The application of the results of analyses in these terms obscure important aspects of the conservation problem.[6]

These writers leave themselves open to criticism also in one other respect. While admitting that there might be social and political motives for conservation programs, they emphasize the economic motives[7] in attempting to answer the question of where land exploitation is justified or should be prevented by public action.[8] In doing so they consciously or unconsciously give the impression that it is possible through economic analysis to determine a standard for public action in the field of land-use. The economist as such of course can never determine whether conservation ought to take place or not. He can only provide adequate methods to achieve politically determined objectives and analyze proposed action programs.

Let us now turn to the second school of writers. Their argument runs something like this. The problem of conservation arises because individual operators do not have the same interest as society in preventing natural resources from being exhausted. Society sometimes invests in conservation, where an individual would not, because society has other time preferences than the individual.[9] Eric Englund has given a clear formulation of this concept: "Surely, society, which is expected to exist in perpetuity, should have a different standard of values as between the present and the future from that of the individual, whose appraisal of the future is governed by his own short span of life and perhaps by a shadowy allowance for a generation or two of his descendants."[10]

In one sense this concept brings us close to the problem of conservation. It recognizes the problem as a conflict of interest or

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[6] Bunce recommends research in accordance with this principle to determine where conservation is economic. *Ibid.*, p. 543.

[7] "The most powerful motive for conserving or exploiting resources is the economic one." Walter W. Wilcox, Measures needed to achieve conservation.

[8] "It is that level of conservation which is or would be maintained by fully informed groups of farmers or investors in land with adequate capital and credit standing." Walter W. Wilcox, Economic aspects of soil conservation, Jour. Pol. Econ., 46(5): 704, Oct. 1938. Compare also the quotation from Bunce's paper in footnote 5.

[9] See for instance L. C. Gray and M. Regan, Needed points of development and reorientation in land economic theory. JOUR. FARM ECON., 22(1): 43–44, Feb. 1940.

[10] What price conservation? Land policy review, 3(2): 2, March–April 1940.

opinion between society and individual operators. It says that society sometimes acts differently from the individual. Such a concept can of course by no means be accepted as an exhaustive explanation as it refers only to the perpetuity of society as the principal reason for these conflicts of interest. Actually programs adopted by society are seldom based upon considerations of an indefinite future. Neither do these writers of the second school realize or treat systematically the differences that exist between the farmers themselves in their utilization of land resources.

In our opinion the economic analysis ought to be focused upon differences in planning. The two groups of writers we have referred to, so far, have either neglected this problem or their proposed methods do not allow a systematic treatment of existing divergencies with regard to land-use plans. We propose therefore another approach suggesting that in theory we can distinguish two principal complexes of reasons why society might act differently from the individual land operator. Either the motives for action diverge, or if the motives are identical then the appropriate methods to achieve common aims are different.

Objectives in economic policy are frequently others than those which determine the plans of individual entrepreneurs. This has been recognized by several writers.[11] The true explanation of the cause for this divergence is, however, still left in confusion. As public policy in a democracy is determined at least indirectly by decisions of its individual members, why should objectives in programs for public action diverge from those, the individual accepts for his own actions?[12] The answer is of course that there are many types of individuals and groups in society each with diverging interests. An individual operator of a large farm, for instance, might want to expoit his property in a way that would leave the soil completely open to erosion. His neighbors knowing that this would cause damage to their farms, and peril their existence in the future, want him instead to establish farming practices which will maintain his soil resources. There are similar conflicts of opinion and interest between the members of the society, and the policy agreed upon represents some kind of a compromise between these different

[11] See L. C. Gray and M. Regan, *ibid.*, and Eric Englund, *ibid.*

[12] "If society through the price structure does not make it profitable for the individual to maintain his resources why should it do this by a governmental device?" Walter W. Wilcox, Economic aspects of soil conservation, Jour. Pol. Econ., 46(5): 704, Oct. 1938.

opinions and interests. Such a compromise is in many instances derived from incommensurable objectives, and in our opinion seldom allows itself to be expressed in the simple mathematical symbol of a sum of individual plans, as suggested by so many economists.[13]

Let us proceed to investigate, how it might happen that in case of identical motives or standards of value, public action programs might differ from production plans of individual operators. Assuming the profit motive in common for society and the individual, and following the approach of T. W. Schultz,[14] let us analyze the problem of diverging action plans in terms of the firm.

In more specific terms, we presume that in operating a piece of land, the individual and society alike out of several alternatives would adopt that land-use plan, which is expected to maximize net return or rather discount values of aggregated net returns, regardless of whether the plan implies investment in conservation or deterioration of soil fertility.[15] This plan will be selected after a careful process of estimating gross returns, subtracting estimated costs and discounting profits under alternative propositions. To make these estimates, the entrepreneur will have to put down his expectations of market prices on his produce and factors used in the production as well as the rate of interest. He might even take into account changes in technology and changes in the general price level. His actual policy determining anticipations with regard to every single item is the result of a choice of one out of many possibilities. We might simplify the reasoning further by assuming that he always selects the alternative, which he believes has the highest probability.

Here we have arrived at a point, where divergencies between society and an individual entrepreneur might first occur, leading eventually to different production plans and different land-use practices. Society might have other expectations than the private entrepreneur. We can say also that society has a different combina-

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[13] The point needs no further elaboration. The study would involve investigations of value judgments, and social institutions, determining political attitudes, problems interesting in themselves, but hardly possible objectives for economic analysis.

[14] T. W. Schultz, Theory of the firm and farm management research. JOUR. FARM ECON., 21(2): 570–586, Aug. 1939. See also, by the same author, Scope and method in agricultural economics research, Jour. Pol. Econ., 47: 717–721.

[15] If we prefer to think of the entrepreneur, individual or society as a gambler, which might be more realistic, the motive could be formulated, making use of Hick's concept, as a scale of net return preferences in terms of probabilities. It is doubtful that the gains in realism in this case would counterbalance the consequent complications of the analysis.

tion of alternative events and probabilities. A price alternative for instance, with the highest probability in the anticipations of society might not be the same as the individual entrepreneur is expecting. Even if estimates and accounts are made according to exactly the same principles, adopted plans will diverge because of different anticipations.

As compared with individual operators and even groups of farmers, society usually has at its disposal superior facilities and instruments with which to predict the future. As society by its own action will influence future events to a much greater extent than the individual or groups of individuals, it is probable that it will be in a better position to make correct predictions, particularly as long as there is continuity in public action programs. This has a bearing not only upon prices and the rate of interest, but also on taxes, which might be an important cost item.

These are two principal reasons why anticipations, made by individuals, might diverge from those made by society, and consequently economic plans might diverge. The conclusion is, that even if society is led by the same economic motives as the individual operator and makes use of identical systems of accounting it might arrive at land use recommendations, which the farm operator will not accept without compensation.

We proceed now to investigate, whether or not differences in the systems used in accounting costs and discounting net returns might be responsible for diverging land-use plans. Still assuming a common profit motive, we have to drop the assumption of identical systems of cost accounting and return estimates. We presume instead, that society has the same anticipations as the individual. Two factors might now cause society's choice of a land-use plan to turn out differently from that of the individual. The first is the discount rate of interest. The second the cost structure.

Society can in general acquire credit at a lower rate of interest than a private entrepreneur, particularly if the latter is a farm operator with limited economic resources. Consequently, it appears advantageous to make longer investments for society than for the individual entrepreneur. Let us assume that the entrepreneur is comparing two land-use plans; one yielding $5000 annually, the other $6000 but requiring an immediate investment of $20,000. If the private entrepreneur is charged 6 per cent annually on borrowed capital, but society can obtain credit at 4 per cent, their

choice will differ.[16] The private firm will adopt the first plan, society the second.

Related to this is the case that society might purchase fertilizer and other implements used on a conservation project at lower price than an individual farmer. The same method of reasoning may be applied.

The procedure of accounting costs, and this is our second point in this connection, might differ from that of the private firm in case society is the entrepreneur. Certain cost items in society's budget may not enter the plan of the private firm. The following numerical example is illustrative:

Suppose there are two alternative plans for management of a forest. According to the first plan all timber would be cut during one year resulting in an immediate and complete exploitation of the property. The gross return would amount to $120,000. The plan would require 27,000 men days of labor, to be supplied by 90 men, working 300 days each. The wage is 3 dollars per day, and labor costs would consequently amount to $81,000. At the time, the plan is considered, four men are employed on the project. There is no unemployment in the region and the entrepreneur would therefore have to hire the additional 86 men from other localities, transport them to the forest and help them to settle down in nearby places. This would call for say $9,000 raising the total cost to $90,000 and leaving a net return of $30,000.

The alternative plan of management implies the establishment of a constant annual production. The gross return is expected to be $5000 per year. In this case only the four original workers would be employed during 300 days each year at the same salary per day as in the first case. The net return would be $1400 annually, the discount value of which at a rate of interest of 5 per cent would be $28,000, as compared with $30,000 according to the first plan. The private firm consequently would prefer the first plan. Society however might find itself in quite another position.

Supposing unemployed persons have the right to relief, then the expenditures for society do not cease with the dismissal of the 90 workers after one year according to the first plan. The workers will have to be compensated or paid relief, until they have found new employment. Society may have an opportunity to employ them on another project, but in this case it will have to consider costs of

[16] The individual farmer "is poorly equipped to adjust his production program to the market and to prices." John D. Black, Significant conclusions on agriculture, address to the Seventh International Management Congress, published in Proceedings, Washington, D. C., 1938.

transportation involved in addition to the costs accounted for in the budget of the private firm. If these additional costs exceed the difference in net return between the two plans, or $2000, society would adopt not the first plan as the private firm, but the second.

The example illustrates an approach which might help explain many causes of diverging land-use plans. The conflict arises because of differences in the cost structure. In our example, labor costs are fixed only for one year for the private firm. For society labor costs are not variable after this short period.

Let us summarize our findings. Divergencies with regard to land-use plans arise because:

1. Objectives for public policy and motives governing the actions of private entrepreneurs are not necessarily compatible.
2. Anticipations differ even though society and the private firm alike are led by the profit motive.
3. Society can acquire capital and other production factors at lower prices than the private firm.
4. The cost structure of a public enterprise is different from that of a private firm. Labor costs and possibly other cost items are less variable in the former case.

The implications of the three last points can be broadened substantially. In the same terms in which diverging land-use plans between society and the individual entrepreneur have been discussed, differences in plans of private firms can be analyzed.

Corresponding to our second point, there is the possibility that one farm operator has other sources of information than his neighbor. Anticipating other price relations in the future, the former might adopt another plan and other farming practices than the latter, even if there are no differences in size of farm or type of soil. In accordance with our third point, we may consider in the analysis of land-use plans that one farmer might obtain credit on more favorable terms than other farmers, and therefore might be more willing to invest in a conservation project. We believe however that the fourth point is of greater significance in analyzing different land-use plans. The cost structure and the system of accounting and appraisal differ with the type of farm to a degrees which might result in different land-use plans. A large scale farm operator calculates the net return in the same way as a business entrepreneur but an operator of a family-sized farm does not consider labor supplied by him and his family as variable costs. For this reason the latter is more interested than the former in maintaining the productivity of his land, and engaging in soil conservation practices. In our opinion

this is a more plausible explanation of the difference in conservation activities of the European peasants as compared with the American farmers rather than a reference to different philosophies of life. For similar reasons we can expect different types of operators managing the same type of farm to adopt different land-use plans. The plan might turn out quite differently in the case of an institutional owner than in the case of a private owner.

Returning to the introductory remarks we suggest that it will prove more fruitful to stimulate economic thinking in soil conservation along these lines than to employ the classical theory of land economics, assuming perfect foresight or to discuss this problem in terms of time preferences. It might guide administrative agencies to achieve the best result within appropriated funds. Making the farmers understand their own interest, and in case of conflicting interests, the reasons for these conflicts, in order to achieve a compromise, where it is possible, may stimulate cooperation in conservation projects.

From a research point of view it is of particular importance to employ as realistic assumptions as possible. It is our belief that the approach we have recommended here will facilitate analysis of dynamics in farm management and land-use better than other theoretical models. There are, for instance, the problem of the relationship between the business cycles and land-use, the question of how the conservation of land resources is related to changes in population, problems which undoubtedly invite themselves to these kinds of analysis.

We are aware of the limitations to the approach suggested here. In our opinion it constitutes the first step towards a more realistic study of the problem of soil conservation, pointing to the significance of differences in production plans at a certain time. Whether or not we can describe a management plan as exploitive, however, is dependent upon the economic return of this plan as compared with alternative plans. This can be determined first when the economic result has been materialized at the end of the period in which the plan has been in operation. The second step in a complete investigation of the soil conservation problem would be to find the relationship between expectations and economic development in the past, as it relates to land use. Would it be possible then, to determine to what extent the problem of soil conservation, that the Nation is facing now, is due to differences or to inaccuracies?

RECEIVED SEPTEMBER 24, 1940

A NEGLECTED POINT IN THE ECONOMICS OF THE SOIL: A REPLY

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MR. LANGE sets an excellent stage. Like Aaron of old he stretched forth his rod and divided the seas in order that the "new" approach might appear in its pristine glory uncontaminated by the errors of the past. However, we object; not only to the general method of dividing writers into "schools," but specifically to the misinterpretation of our position. For example, Mr. Lange states that "employing the assumption of free competition and perfect foresight" leads to the conclusion "that conservation or exploitation is economic for society when it is economic for the individual." His conclusion is that "in reality we have to deal with conflicting opinions and interests between different entrepreneurs and between members of society with regard to land use, or anything but 'harmony.'" Mr. Lange apparently fails to notice the statement of Mr. Wilcox, although it appears in the same article, that: "Where individual and group economic interests diverge, as is conceivable in a number of cases, it would be necessary to have rules and regulations with regard to group action. In case there is a divergence of the individual's and group's economic interest, the majority must be permitted to dictate to the individual."[1] Similarly he fails to notice that Mr. Bunce lists four cases where exploitation may occur, the first one being "When it is economic for the individual to do so" and he then states: "When this occurs the problem of determining whether individual and social objectives are compatible must be faced."[2] The second case is where all the costs are not borne by the entrepreneur but he "can transfer some of these to society, or to other persons in the society." The case of damage to other lands is specifically mentioned and is similar to the illustration used by Mr. Lange. The third case deals with custom and ignorance and the fourth with rigidities in the price structure and specifically mentions abnormally high interest rates.

Lange states, "The economist as such can of course never determine whether conservation *ought* to take place or not. He can only

[1] W. W. Wilcox, Economic aspects of soil conservation, Jour. Pol. Econ., 46(5): 705, 1938.

[2] Arthur C. Bunce, Time preference and conservation, THIS JOURNAL, 22(3): 539, 1940.

provide adequate methods to achieve *politically* determined objectives and analyze proposed action programs." Wilcox states (p. 704) "Society as a whole must determine the basis for arriving at the answer and the answer itself," and Bunce states (p. 542) "When non-economic ends are being considered, our friends, the sociologists, and other social scientists will give more reliable guidance than can the economist whose contribution in these circumstances is limited to appraising the economic implications of suggested programs." How Lange proposes to substantiate his claim that Wilcox and Bunce assume harmony between society and the individual in all cases is extremely difficult to see.

After reading the introduction we anticipated something more than a restatement of Pigou's analysis of the divergence between social and individual net returns. It is true that Pigou states:

> "Plainly, if we assume adequate competence on the part of the governments, there is a valid case for *some* artificial encouragement to investment, particularly to investments the return from which will only appear after the lapse of many years."

But he did not stop there; he also states:

> "It must, however, be remembered that, so long as people are left free to decide for themselves how much work they will do, interference, by fiscal or any other means, with the way in which they employ the resources that their work yields to them *may* react to diminish the aggregate amount of this work and so of those resources. It does not follow, in short, that, because economic welfare would be increased if a man who now invests, say, one-tenth of his income, *chose* to invest one-half, *therefore* it would be increased if he were compelled by legislative decree, or induced by taxes and bounties, to make this change."[3]

It is in analyzing this latter problem that Mr. Lange's paper is particularly weak.

The basic problems of social economics may be summarized under four headings: (1) measuring the social costs and benefits of individual actions; (2) estimating values which are not determined through the pricing system; (3) analyzing the causes and economic effect of divergence between social and individual actions due to differences in risk bearing, ability, knowledge, monopoly, etc.; and (4) finding economic incentives to modify individual actions if necessary so that the social net returns are maximized, and evaluating alternative methods of social action.

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[3] A. C. Pigou, Economics of welfare. Macmillan, 1932. P. 30.

And now after voicing a bit of disappointment at the misinterpretation of the studies quoted, the confusing way the concept of expectations is brought into the picture, and the absence of pushing the analyses of situations where individual and social costs differ beyond the stage developed by Pigou, on the basis of this article we gracefully welcome Mr. Lange into "our school of thought" and ask admittance into "his."

RECEIVED MARCH 10, 1941

MIGRATION AND RESETTLEMENT IN THE FAR WESTERN STATES*

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AMONG THE most widely discussed social problems in the Far Western States during recent years have been those centering about the migration to these states of "drought refugees" and other distressed rural families from the Great Plains and the Cotton Belt. With the aim of developing a factual basis for the formation of public policies in relation to these problems, the Bureau of Agricultural Economics and cooperating agencies have been engaged during the past two years on a study of recent migration to and resettlement within the states of California, Arizona, Oregon, Washington, and Idaho.

Objectives of the study are: (1) To measure the volume of migration to California, Arizona, Oregon, Washington, and Idaho during the period 1930–39, inclusive; (2) to determine the origins and certain economic and social characteristics of the migrating group; (3) to determine the present economic and social situation of migrants resettling in agriculture in the Far West and to appraise their future prospects; (4) to indicate feasible measures for facilitating resettlement of displaced agricultural migrants.

Results of this study have been published in a series of articles in the Land Policy Review during 1940 and in reports of the Senate Civil Liberties Committee (California Investigation) and the House Committee on Interstate Migration. Some of the important conclusions are as follows:

First: An estimate of the volume of recent migration to the Far Western States. The study showed that approximately 500,000 people moved into the Pacific Northwest and about 1,250,000 persons moved to California during the years 1930–39, inclusive. Migration into Arizona during the decade was estimated at approximately 134,000 persons. It is emphasized that these figures represent only inward migration surviving in each state at the end of the decade, not net migration nor population increase. Compared to previous westward movements of population, these figures are not large. The migration to California during the decade of the

* This is an extract of a paper read before the 1940 meeting of the Western Farm Economics Association.

'30s was less by three quarters of a million persons than the migration to that state during the 1920's; the movement to the Pacific Northwest was slightly larger than during the earlier decade. From this it may be concluded that the problems attendant on recent migration to the Far West cannot fairly be attributed to an unprecedented volume of migration, but are the result of restricted economic opportunities which the migrants have encountered in the areas to which they have gone. There is a strong implication that the solution of such problems lies not in repression of migration, nor in sending the migrants back to where they came from, but in taking measures to remove the barriers to successful resettlement.

Second: Analysis of the occupations of the migrant group prior to migration reveals a close correspondence between the occupational distribution of the migrants and the occupational structure of the population in the states of origin. Migrants to the Far West during the past decade have been drawn from virtually all occupations, from domestic service and unskilled labor to the most highly trained professions. Agricultural people were an important but by no means a predominant element in the migrating population. Slightly less than one-third of the migrants to the Pacific Northwest, and less than one-fourth of the migrants to California had been engaged in agriculture, either as farmers or farm laborers, prior to migration. The higher proportion of agricultural people in the migration to the Pacific Northwest is related to the fact that migrants to that area, to a greater extent than in California, came from states having a relatively high proportion of their population engaged in agriculture. In all but one state of origin—Oklahoma—migrants to the Far West were drawn more than proportionately from non-agricultural occupations and less than proportionately from agriculture. Evidently, agricultural families have shown no greater disposition to move west than families in other occupations. The influx of distressed agricultural families into the Far Western States is shown to be a not disproportionate part of a larger population movement.

Third: The present occupational distribution of the migrant group in the Far Western States shows a marked inclination to approximate the occupational distribution of the general population in these states, suggesting a tendency on the part of the newcomers toward adjustment to the distribution of economic opportunity in

the West. This adjustment has entailed a vast amount of shifting from one occupation to another. Only 14 per cent of the farmers moving to California, for example, were reported to be operating farms in California in 1939. Most of the former farm operators became farm laborers and skilled and semi-skilled workers. Similar changes occurred in other occupational groups. In general, a disproportionate number of migrant family heads were employed as farm laborers and as unskilled and semi-skilled workers in non-agricultural industries.

Fourth: A majority of the migrants settled in urban areas. Approximately half of the families migrating to the Northwest, and more than three-fourths of those moving to California, were found in cities of 2,500 population and larger. More than one-third were in cities of 100,000 and over. More than half of the migrants to Arizona settled in Maricopa county (Phoenix). Numerous small towns and rural areas, however, received a disproportionate number of migrants, particularly, of distressed agricultural families. In California, as a whole, the survey enumerated 21 migrant families per 1,000 population in 1930, but in the San Joaquin Valley the ratio was 31 per 1,000, and three counties had ratios in excess of 40 per 1,000. The same survey in Oregon enumerated 20 migrant families per 1,000 population, but four counties had ratios of more than 30 per 1,000. To a considerable extent, the local difficulties which have attended the resettlement of the migrant group have been due to this extremely uneven geographic distribution of the newcomers. The present study reveals the geographic distribution of the migrants in precise form.

Fifth: A strong tendency toward permanent settlement in certain communities was observed among the agricultural migrants studied in California and the Yakima Valley of Washington. More than 50 per cent of these groups had purchased real estate since their arrival and were building homes. For the group as a whole, practically all savings since arrival have gone into real estate purchases and improvements. The principal limiting factors affecting these groups are the low earnings and seasonality of agricultural employment, upon which they are principally dependent. More than two-thirds of these families were dependent wholly or in part on public assistance during some portion of the year. Nearly a third of them received a major part of their income from public assistance. For a large proportion of the migrant families who are seeking to estab-

lish themselves as agricultural laborers, the WPA is the most important stabilizing influence in their lives, although, for the group as a whole, income from public assistance constituted little more than one-fourth of the total income.

Sixth: Settlers on newly irrigated lands in the Vale-Owyhee Reclamation Projects in eastern Oregon were found to be making substantial progress in developing their farms, but doing so at heavy costs in terms of current living conditions. Many of these settlers were increasing their net worth by $1,000 or more per year, but at the same time living in crude shacks and spending only from $300 to $400 per year for family living. The chief problem of these settlers is lack of sufficient credit for farm development. The evidence seems clear that better credit facilities would enable many of these settlers to develop their farms more rapidly as well as maintain a higher level of living during the development period.

Seventh: Migrant families settling on cutover land in the Pacific Northwest face problems of farm development similar to those of settlers in new reclamation projects but their progress is generally much slower. One group of settlers studied in northern Idaho was clearing land at an average rate of two acres per year, while another group in the Douglas Fur Cutover region of western Washington was found to be clearing less than half an acre per year on the average. Until the settler has cleared a substantial acreage, virtually no sources of credit for land development are available to him. The majority of these settlers depend for livelihood primarily on off-farm employment. As in the case of the farm laborers, the WPA is an important stabilizing influence. Living conditions are poor. In the absence of credit for land development and with present rates of progress, it is unlikely that many of the present settlers will live to see their farms fully developed.

Evaluation

The present study represents the cooperative effort of specialists in rural sociology, farm management, and land economics, working on a problem which lies across and even partly beyond all three fields. The study was undertaken to provide some guides for the direction of public policy in relation to migration and resettlement in the Far Western States, and it must be judged by its worth for that purpose. The research workers are aware of numerous gaps in their knowledge of the problem. Little is known about the opera-

tion of selective factors either in migration or in settlement. No detailed studies have been made in the cities and understanding of the problems of migration to urban areas is not far advanced. The pattern of occupational adjustments has been examined in detail but little is known about the circumstances under which occupational adjustments are made, nor does the study elucidate the special problems of youthful migrants.

Aside from these deficiencies, in the judgment of the research workers, the study contains important implications for public policy in what it shows concerning the nature, dimensions, and geographic distribution of migration problems. It localizes the problems and affords definite statistical evidence of the relative attracting power of different areas, occupations, and industries. It reveals in precise terms the nature of the difficulties which migrants face in their new locations—in certain situations, extreme seasonality of employment and earnings; in other situations, lack of credit. It directs attention to specific areas, specific groups of people, specific "problem" situations, and brings the much discussed "migrant problem" into the light where its dimensions and essential character can be perceived.

RECEIVED SEPTEMBER 27, 1940

NOTES

SOME ASPECTS OF THE FOOD STAMP PLAN AS APPLIED TO CONSUMPTION OF FATS*

TWO basic ideas underlie the Food Stamp Plan: (1) shifting income from families with high incomes to families with low incomes increases the demand for food, and (2) the restriction of the use of the increased income for special "surplus" commodities increases the demand for these commodities. It is the purpose of this article to show how these two basic ideas of the Food Stamp Plan may affect the consumption of fats, particularly lard, and the effect of the Food Stamp Plan upon the consumption of commodities not included in the surplus list.[1]

A. *The Income Effect*

Families with low income spend a greater part of their income for foods than those with high income. Therefore a shift of income from high income families to low income families increases the demand for food. We may call this the income effect of the food stamps. If families with low income spend a greater part of their income for fats than those with high income, the demand for fats also increases with such an income. For example note the increase in the consumption of butter as income increases (see figure 1).[2] If the income of a family increases from $300 to $1300, butter consumption increases from A to B; if the income of another family is decreased from $9000 to $8000—that is by the same amount as the income of the first family has been increased—butter consumption decreases from C to D; therefore, if $1000 income were shifted from a family which earns $9000, to a family which earns $300, butter consumption will increase by AB minus CD. As long as the curve in figure 1 is steeper for the low income groups than for the high income groups, the demand for butter increases if income is shifted from the high income groups to the low income groups. In general

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* Journal Paper No. J-850 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 383.

[1] For details on the Food Stamp Plan see Norman Leon Gold, A. C. Hoffman, Frederick V. Waugh, Economic analysis of the Food Stamp Plan, U. S Dept. Agr., 1940. See also the review of this book by Kaethe Mengelberg, JOUR. FARM ECON., 1941, 23(1): 386.

[2] The figure is based on data from Milo Perkins, The challenge of under-consumption, U. S. Dept. Agr., FSCC, Feb. 1940.

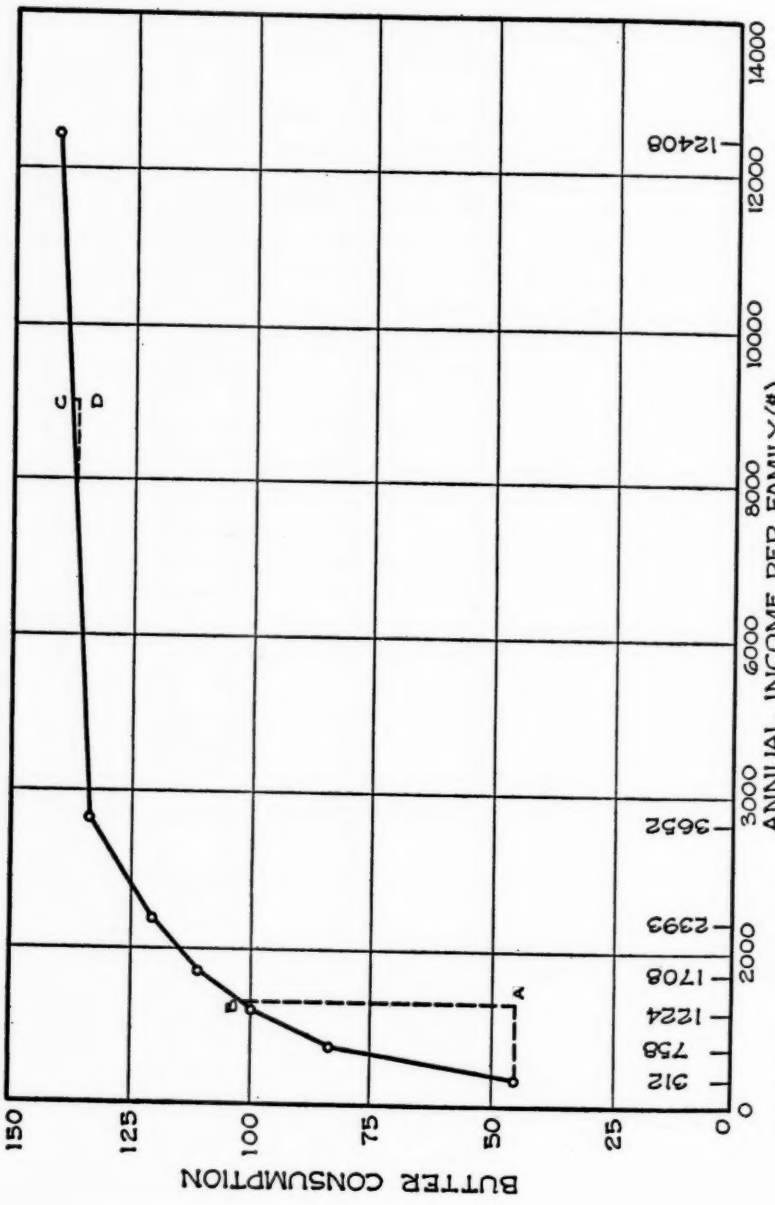

FIG. 1. RELATION BETWEEN INCOME AND CONSUMPTION OF BUTTER, NON-FARM, NON-RELIEF FAMILIES, 1935-36.
(QUANTITIES CONSUMED BY $1000–$1500 INCOME GROUP = 100)

when the curve representing the relation between the consumption of a commodity and income (we may call it the consumption-income curve) is convex on arithmetic paper, a more equal distribution of incomes will increase the demand for the commodity.

In order to simplify our analysis we may neglect the effects on the demand for food of the decrease in the income of rich families resulting from transferring part of their income to poor families. Such effects depend entirely upon the techniques employed in shifting the income. As a matter of fact, a slight reduction in income of families whose incomes are very high results in only a negligible change in their food consumption. We shall assume that as long as the consumption of the commodity increases with an increase in income for the low income groups, the subsidy to poor families will increase the demand for the commodity.

Increasing the incomes of poor families may have very different effects upon the consumption of different fats. Note the consumption-income curves for individual fats in figure 2.[3] The consumption of three fats—butter, mayonnaise, and vegetable shortenings—rises as income is increased. Consequently an increase in the income of low-income families would increase their consumption. There are, however, three fats whose consumption decreases with an increase in income: lard, oleomargarine[4] and lard compounds. The decrease in the consumption of oleomargarine and lard resulting from an increase in income is more rapid in the low-income groups than in the high-income groups. If the income of a family with an annual income of $750 is increased by $1000 to $1750, the family's lard consumption will decrease by 5 pounds per year or by 12 per cent and its consumption of oleomargarine will fall by 7.5 pounds per year, or by 53 per cent. If the consumption-income curve is falling, an increase in the income of poor families will decrease the demand for the commodity.

The consumption-income curve for lard compounds declines as income is increased from $750 to $1750, but increases slightly as income becomes larger than $1750. Hence, the effect of increasing the income of poor families upon demand for lard compounds depends upon the size of the original income and the degree in which income is increased. Similar effects might be expected for oleomar-

[3] The figure is based on data for the total United States, computed from regional data in, Family expenditures in selected cities, 1935–36, Vol. 2. Food; U. S. Dept. Labor, Bul. 648, 1940.

[4] In the statistics oleomargarine appears as "table fats other than butter."

(QUANTITIES CONSUMED BY $1000–$1500 INCOME GROUP = 100)

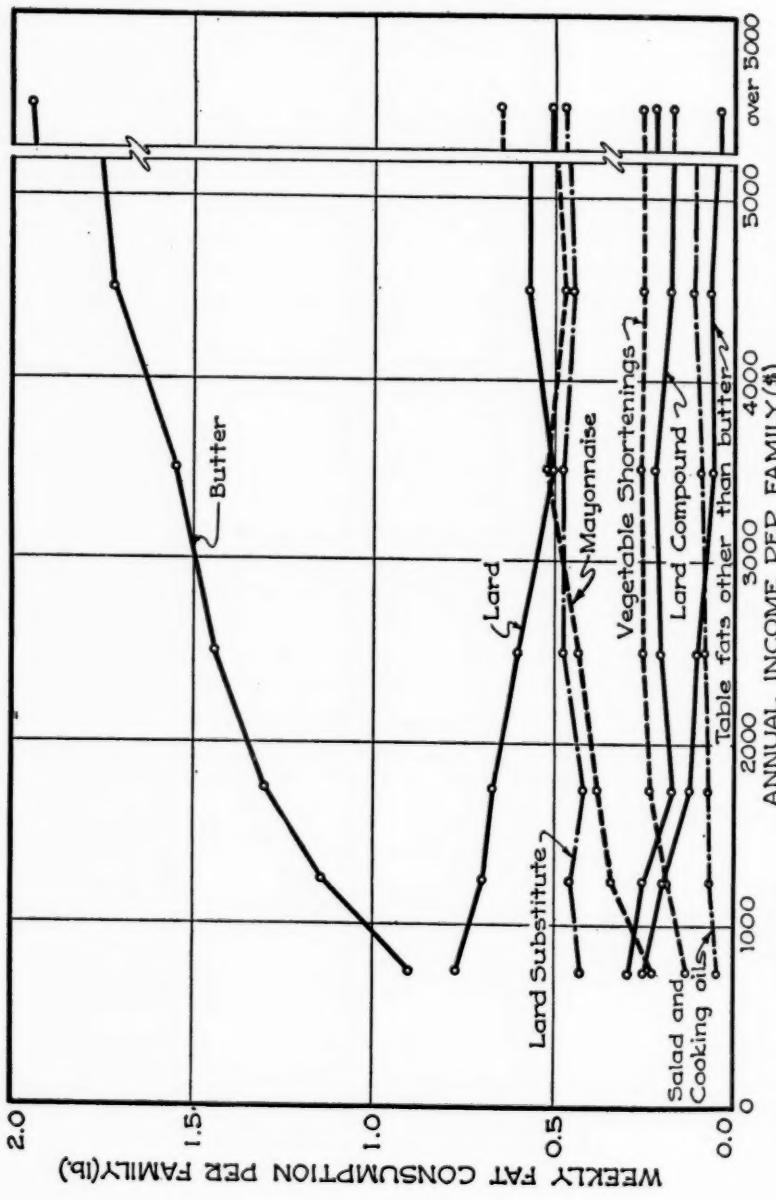

FIG. 2. AVERAGE WEEKLY CONSUMPTION OF FATS AT HOME, DURING ONE WEEK, BY INCOME, 1935–36, NON-RELIEF FAMILIES INCLUDING HUSBAND AND WIFE, BOTH NATIVE BORN

garine if the consumption-income curve has the shape of that shown in figure 3.[5] An increase in income might increase or decrease the demand for oleomargarine depending upon the size of the original income and the magnitude of the increase.

We may summarize our findings: If the consumption-income curve for a commodity is positively inclined (at least for the low-income groups) an increase in the income of low-income groups increases the demand for the commodity, if the curve declines an increase in income of the poor families decreases consumption of the commodity.[6] Increasing the income of low-income families would probably result in increased demand for butter, mayonnaise and vegetable shortenings, while the demand for lard would probably decline. The effect of increasing income in the low income groups upon the demand for lard compound and oleomargarine depends upon the size of the original income and the magnitude of increase, but it is likely that the consumption of both commodities would fall.

B. *The Restriction Effect*

The other major idea of the Food Stamp Plan is to restrict the use of the increased income to the consumption of special foods. Poor families obtain with each dollar they spend for food, 50 cents worth of blue stamps with which only commodities on the surplus list can be purchased. We may call this the restriction effect of the food stamps. It is the change in the demand caused by the restriction of blue stamps to the consumption of surplus-foods instead of to the consumption of all foods.

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[5] Figure 3 is based on data from Hazel K. Stiebeling and Esther F. Phipard, Diets of families of employed wage earners and clerical workers in cities, U. S. Dept. Agr., Circ. 507, Jan. 1939, p. 20.

[6] To be more exact: If the consumption-income curve is convex, an equalization of income increases consumption, if the curve is concave, an equalization of income decreases consumption. This is analogous to the discrimination in time which decreases the total revenue in cases of a convex total revenue curve. An empirical analysis shows: (1) that the consumption-income curves of most commodities whose consumption increases less than proportionally with increasing income are convex. (See Milo Perkins, *op. cit.*); (2) that the consumption-income curves of most of the commodities, the consumption of which decreases in the lowest income groups with increasing income are concave; (3) that the consumption-income curves of commodities, the consumption of which decreases in the higher income groups only, are convex.

The effect of an equalization in income is usually to increase the consumption of commodities with rising consumption-income curves (superior goods) and to decrease the consumption of commodities with declining consumption-income curves (inferior goods); it increases the consumption of commodities with increasing and later decreasing consumption-income curves and decreases the consumption of commodities with decreasing and later increasing consumption-income curves.

FIG. 2. AVERAGE WEEKLY CONSUMPTION OF FATS AT HOME, DURING ONE WEEK, BY INCOME, 1935–36, NON-RELIEF FAMILIES INCLUDING HUSBAND AND WIFE, BOTH NATIVE BORN

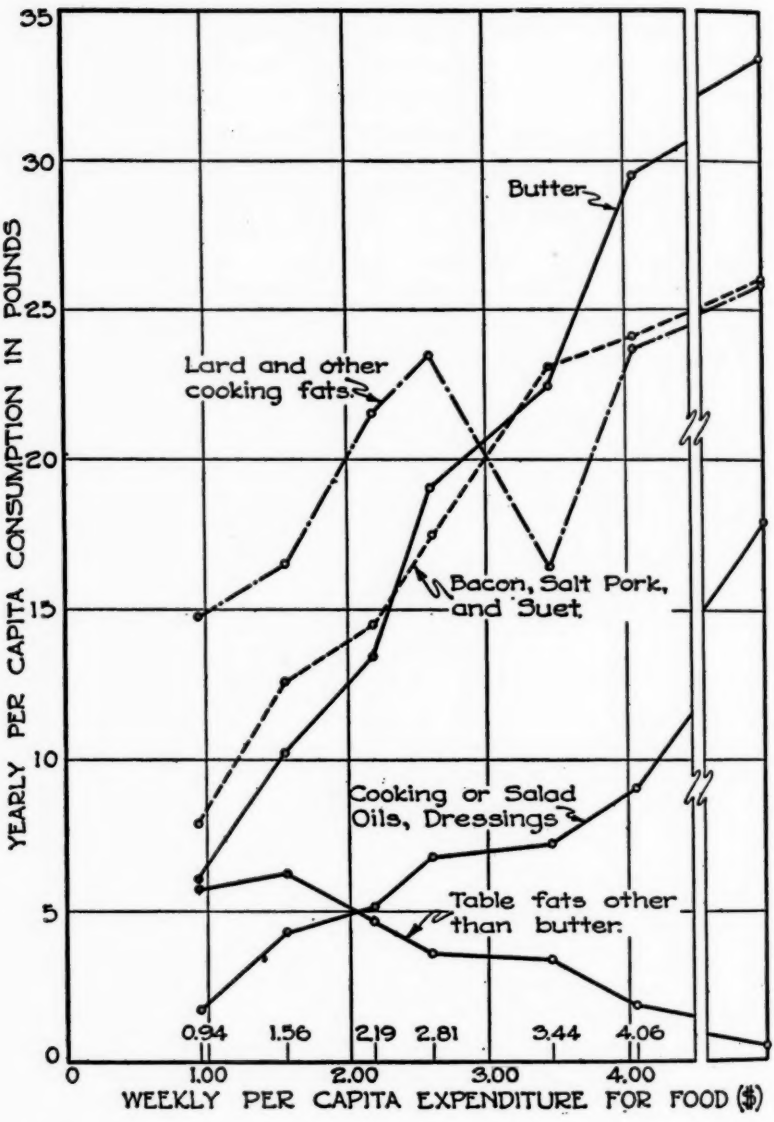

FIG. 3. ESTIMATED PER CAPITA CONSUMPTION OF FATS IN A YEAR, BY LEVEL OF FOOD EXPENDITURE, DECEMBER 1934–FEBRUARY 1937

The Food Stamp Plan attempts to force recipients of blue stamps to consume "surplus" commodities equivalent in value to one-third of their food expenditure. If these classes would expend one-third of their food budget on surplus commodities without the incentive of blue stamps there would be no point in restricting the use of blue stamps to purchases of surplus commodities.[7] If the limitation placed upon the use of the blue stamps increases the demand for surplus commodities, this[8] must decrease somewhat the demand for some non-surplus foods, since surplus commodities will be substituted for non-surplus foods wherever possible. This lowers the prices of some non-surplus foods. In consequence the consumption of those non-surplus foods by families not receiving surplus food stamps increases somewhat. The latter effect cannot offset, but moderate only, the reduction in price of these non-surplus commodities caused by the decrease of demand by the families which use food stamps. The total effect must be a reduction in the total demand and in the price of some non-surplus commodities caused by the limitation of the use of blue stamps for surplus commodities only. We may neglect the moderating effect of the increase in consumption of families not participating in the Food Stamp Plan.

C. *The Relation Between Income Effect and Restriction Effect*

If there were only one commodity, say lard, on the surplus list, all the stamps would be used for lard and the value of lard consumed by families willing to accept the stamps would increase to one-third of their total food budget. In this case there would become apparent only the restriction effect. If expenditures for commodities on the surplus list normally comprise more than one-third of the total food budget there would be no restriction effect but only the income effect, and the consumption of lard would decrease, since lard is an inferior good. As the number of commodities on the surplus list becomes greater, the income effect becomes more important and the restriction effect less important.

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[7] See Gold, Hoffman, Waugh, *op. cit.*, p. 51, where erroneously 50 per cent instead of 33 per cent is stated as limit.

[8] We have to distinguish three situations: (a) there are no food stamps, (b) there are food stamps which can be used for all foods, (c) there are food stamps the use of which is restricted to surplus foods. The income effect compares situation (b) with situation (a), the restriction effect compares situation (c) with situation (b), and the combined effect compares situation (c) with situation (a). In this chapter the restriction effect only is discussed.

Insofar as the restriction effect and the income effect work in the same direction and increase the demand for a surplus commodity (for example, butter) or decrease the demand for a non-surplus commodity (for example, lard) the distinction between both effects is not important. The distinction becomes important if the income effect and the restriction effect work in opposite directions. Either the income effect may increase and the restriction effect decrease the consumption of a non-surplus commodity (for example, butter) or the income effect may decrease and the restriction effect increase the consumption of a surplus commodity (for example, lard). These last two cases may be considered in more detail.

If lard is a surplus commodity the restriction effect leads primarily to a substitution of lard for lard substitutues.[9] The income effect leads to a slight substitution of butter for lard.[10] With a longer surplus list the restriction effect becomes weaker and the income effect becomes stronger. The weaker the restriction effect becomes the more lard is replaced by lard substitutes; the stronger the income effect becomes the more lard is replaced by butter, whether butter is on the surplus list or not.

If two competing commodities are on the surplus list, the restriction effect does not exist for their relative consumption but an effect similar to the income effect will enter the picture. For example, if butter and lard are the only surplus commodities, butter will replace lard in consumption, because the desire for fat will be better satisfied by butter than by lard, as we may conclude from the substitution of lard by butter as income increases. As the list of surplus commodities lengthens, blue stamps can be used for commodities other than fats and fat consumption will be decreased in favor of other foods. This will cause a shift in consumption from butter to lard. In general if two competing commodities are included in the surplus list, as the list becomes longer the two commodities replace each other in a direction contrary to that produced by the income effect. The same is true if only the superior commodity (butter) is on the surplus list and the inferior commodity (lard) is not on the list. In this case the weakening of the restriction effect with an increase in the number of surplus commodities has a greater effect than the strengthening of the income effect, and the consumption

[9] This follows from a detailed empirical analysis of the consumption of edible fats in the United States which will be published shortly by the Agricultural Experiment Station, Iowa State College.

[10] See the last footnote. It follows also from figure 2.

of the superior surplus commodity decreases while the consumption of the inferior non-surplus commodity increases.

The experience of the Food Stamp Plan reveals that with the surplus listing existing then about 25 per cent of the blue stamps have been used for butter,[11] or that about 8 per cent of the total food expenditures of families receiving these stamps have been made for butter. If these families do not receive food stamps butter makes up about 4.5 per cent of their expenditures for all foods,[12] so that the share of the butter consumption on food expenditures of these families increased by at least 80 per cent when they were given blue stamps. The consumption of all edible fats (butter, lard, lard substitutes, oleomargarine) comprises 11 per cent of the food expenditures for families with weekly food expenditures of $1.50 per capita, 4.5 per cent being spent for butter and 6.5 per cent for other fats. Increased butter consumption must have resulted in a substitution of butter for other fats, among them lard. However, if foods other than fats are added to the surplus list, butter consumption decreases and lard consumption consequently increases. The total effect of the Food Stamp Plan on the relative consumption of these fats depends on the number and the kind of commodities included in the surplus list. The more elastic is the demand for butter as compared with the demand for other surplus commodities, the greater is the restriction effect, that is, the more butter will be used to replace other commodities.

D. *Summary*

The income effect of the Food Stamp Plan decreases the consumption of inferior foods. The restriction effect decreases the consumption of all non-surplus foods and increases the consumption of all surplus foods. Under existing surplus listings for an inferior good such as lard, both effects work together and decrease the consumption of lard as a non-surplus commodity. Even if the inferior good (lard) is put on the surplus list together with a superior substitute (butter) its consumption may decrease because of the income effect of the Food Stamp Plan. Altogether one may expect an unfavorable

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[11] For the period July 16, 1939 to December 15, 1939. See Gold, Hoffman, Waugh, *op. cit.*, p. 34. See also, Use of blue stamps under the Food Stamp Plan, May 1939–September 1940, U. S. Dept. Agr. SMA, Oct. 31, 1940.

[12] The figures in this paragraph are calculated from the consumption data in Stiebeling and Phipard, *op. cit.*, and the retail prices published by the Bureau of Labor Statistics.

effect from the Food Stamp Plan on inferior commodities and on commodities that are not on the surplus list.

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AN EXPERIMENT ON THE ACCURACY OF FARM SURVEY DATA

QUESTIONS are frequently raised regarding the accuracy of data obtained by means of surveys. With increases in the use of the farm survey as a means of obtaining basic statistical information on farm operations and farm returns, such questions are of increasing importance. Obviously standard answers cannot be given for all conditions. Wide variations occur in amount and direction of bias as well as in size of deviations between reported values and the "true" values represented, both between investigations and between different items in the same study. Among the influences related to the degree of error in the original estimates are:

(1) The nature of the specific question asked. For instance, farmers are able to answer questions regarding farm acreages with a fairly high degree of accuracy; and questions on crop yields with somewhat less, while an offhand summation of the total annual returns from egg sales is likely to contain a large element of error.

(2) The length of time that has elapsed between the transaction and the date of the survey (related to the well known "memory bias").

(3) The technique used in obtaining the information from the farmer,—the form in which the question is put, whether it follows conditioning or preparatory questions.

(4) The training, skill, and experience of the enumerators. There are many other influences on the degree of error in the original survey data, but these are among the most persistent and, it is believed, the most troublesome.

The study or experiment reported here grew out of an effort to orient a group of approximately 1000 farm business records. It is realized that these accounts, kept under the supervision of the Iowa Agricultural Extension Service, represent mostly the larger and more efficiently operated farms of the state. In interpreting the contents of these records for the benefit of Iowa farmers in general, it is highly important to know where they, as a group, are located

in the general distribution of Iowa farms. An opportunity for such orientation appeared when a random sample survey of approximately 800 farms was taken in January 1940.

A question arose, however, whether the figures obtained by the sample survey were as nearly complete and accurate as those in the records. It was necessary to answer this question before comparing income or expense figures from the two different sets of data.

During February 1940 while the 1939 farm business records were being summarized at the Experiment Station (and were therefore unavailable to the farmers who had kept them), a survey was made of a selected list of questions on farm income and expenses on 68 of the record keeping farms. For the purposes of this test, the questions asked were selected from the random sample survey mentioned; they were phrased identically, and the farmers were interviewed by experienced enumerators. It should be kept in mind, however, that the farmers had had an additional month in which to forget the details of their 1939 business, since the sample survey pertaining to the year 1939 was made at the end of December and the first of January while the test survey was not made until February. On the other side, since the record keepers had been accustomed to thinking of, and working with, income and expense figures for their businesses, it may be supposed that they would have such data in mind better than farmers interviewed in the sample survey, most of whom were keeping no records. Consequently we might well expect the discrepancy between the recorded figures and the survey figures to be smaller on the farms of the record keepers than on the average farm covered in the sample survey.

Results of the test survey are summarized in table 1. Estimates both of income items and of expenses tended to run smaller in the survey than in the records for the same farms. The average difference between totals of the selected items of income (covering 82 per cent of total recorded income) was 12 per cent, while the average difference between totals of selected expense items (covering 68 per cent of total recorded expenses) was 13 per cent. These figures indicate that the farmers were more likely to forget receipts or expenditure items than they were to overestimate. On the basis of data from these 68 farms, if we wished to estimate the full receipts or expenditure items, we should multiply the survey totals by 1.14, the reciprocal of .88.

The average differences, however, tell only part of the story, since there was wide variation in the accuracy of estimates between one farm and another. The extent of this variation is indicated by the standard deviations shown in table 1. The average difference between the records and the survey figures tells us little about this variation between farms. Thus, in the case of wages paid, the average difference is only $13, while the standard deviation of the discrepancies is $83.

TABLE 1. COMPARISON OF DATA FROM SURVEY AND FROM RECORDS, 68 IDENTICAL IOWA FARMS, 1939

	Data from records (dollars)	Data from survey (dollars)	Average deviation from records (dollars)	Standard deviation of difference (dollars)
Selected Income Items				
Dairy Products sold	464	493	28*	129
Eggs sold	165	175	10*	91
Poultry sold	92	89	− 3*	54
Cattle sold	1,214	1,149	− 64*	291
Hogs sold	1,359	1,136	−223‡	418
Corn sold	130	137	7*	218
Other crops	203	122	− 81‡	204
Machine work off farm	56	62	6†	91
Government payments	497	320	−177‡	252
Total selected items	4,160	3,675	−485‡	679
Selected Expenditures				
Commercial feed bought	248	198	− 50‡	107
Farm raised feed bought	503	437	− 66†	259
Cattle bought	627	560	− 67	342
Hogs bought	141	115	− 26*	122
Wages paid	230	217	− 13*	83
Equipment expenditures	801	693	−108	340
Total selected items	2,550	2,220	−330‡	610

* Non-significant.
† Significant at the 5 per cent level of probability.
‡ Significant at the 1 per cent level of probability.

But do the survey data tend to fluctuate around the recorded figures in typical absolute amounts; or is the variation of a proportionate character? Apparently there is some of each type. The deviations about $1000 items tend to be larger than about $100 items in the same series. However, there are larger percentage deviations above or below small recorded figures than about large ones. An error of a few dollars on a small item may constitute a

wide percentage deviation. Thus the $13 average absolute difference between survey and record data on wage expenditures is only 5 per cent of the average wages of $230, and the average of the individual percentage errors is only 0.2 per cent; while the standard deviation of the percentage errors is actually 63 per cent. A larger sample than the 68 farms studied in this test might well change the average discrepancies, and to some degree the standard deviations.

From these figures we may conclude that the survey figures for this group of farms need to be increased by one-eighth to one-sixth in order to estimate the total of the receipts or expenses, but we are not sure what correction factor may be needed for individual items. Further, the variation from farm to farm is so pronounced that we should not be safe in estimating from the survey the true income or expense for any individual farm.

The variation in accuracy of estimate from farm to farm carries other implications as well. A doubt may be expressed as to whether the more precise or elaborate methods of statistical analysis should be applied to survey data of this type. The ordinary measures of significance cannot be applied in the standard methods in interpreting correlation coefficients or even differences between averages of such data. For instance, the added and more or less erratic discrepancy between the true values and the estimated values as found in the survey data means that a correlation coefficient between two series of survey data will be smaller than would a similar coefficient between the recorded (and presumably correct) values of the same data.[1] This is illustrated by the coefficients worked out as an experiment and shown in table 2. In each case the coefficient based on the survey data is smaller than that based on the record data. In one case, it should be noted that the correlation according to the survey data is significant only at the 5 per cent level of probability, while on the same farms a corresponding coefficient based on the recorded data is significant at the 1 per cent level. In other words, relationships amongst survey data are likely to be underestimated if estimated by the usual correlation coefficient.

The survey method has provided a large proportion of the basic data used in agricultural economics. Not only do many studies

[1] It should not be supposed that all the recorded figures for the 68 farms studied were absolutely correct. In the course of the survey cases were uncovered in which farmers had forgotten to record occasional items of expense or income. These, however, were relatively few.

made by the experiment stations and the Bureau of Agricultural Economics rest upon this method, but the same method is employed by the United States Census. Suitable methods of interpretation of such data need to be developed if they are to yield their maximum benefit. Obviously a sample of 68 farms does not provide a

TABLE 2. COMPARISON OF CORRELATION COEFFICIENTS BASED ON FARM RECORD DATA AND ON SURVEY DATA FROM 68 IDENTICAL FARMS

	From records	From survey
Total selected income items to total selected expense items	.761‡	.706‡
Commercial feed bought to farm raised feed bought	.186*	.109*
Wages paid to hogs sold	.265†	.250†
Government payments to equipment expense	.394‡	.237†

* Non-significant.
† Significant at the 5 per cent level of probability.
‡ Significant at the 1 per cent level of probablity.

basis for any broad generalizations. This note has been written in the hope that it may stimulate a more comprehensive study of the peculiarities and biases of survey information and of methods of overcoming them.

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RECEIVED MARCH 20, 1941

PRICE-QUALITY RELATIONS IN THE COTTON MARKET OF VICTORIA, TEXAS

THIS SHORT discussion is a supplement to L. D. Howell's paper, "Quality-Price Differentials in Cotton Marketing," which was published in the JOURNAL OF FARM ECONOMICS, issue of February 1941. The conclusions of Dr. Howell as to the necessary reorganization of the local cotton market to give proper recognition to quality seem to require two types of information to be given the grower:

1. Information as to the quality of his bale of cotton as revealed in the classification certificate issued by a federally licensed cotton classer.

2. Information as to the market value of his specific quality of cotton as furnished by price quotations of the federal market news service.

This plan to reorganize the local cotton market seems to assume

that buyers in the local market would be willing to trade on the basis of the classification certificates. One may properly ask: "Would this reorganized market prove successful in eliminating the evils of 'hog round' trading?" As a step in answering this question, attention may be directed to one of the most significant findings of the price-quality studies. Dr. Howell points out that the average price paid growers in the local market conforms rather closely to the average quality in that market. This means that growers in a local market receive, on an average, the full worth of their cotton. In a sense, this average price is in the nature of a pooled price. That being the case, perhaps the adjustment needed in the local market is rather a reorganization of the methods of apportioning the average price to the growers than a change in the trading methods followed by the local buyers.

Further light may be shed on the issue raised above by the experiences of cotton growers in the vicinity of Victoria, Texas. In 1937, twenty-three growers with 1100 acres planted the same approved variety. A ginner agreed to gin exclusively for the group. A committee of three member-farmers was appointed to sell the cotton for the group. In 1940, seventeen one-variety communities had been organized representing 750 growers and 30,000 acres of cotton. Each community has its exclusive ginner. A central office has been established in Victoria in charge of a broker, or manager, who does the selling for all the communities.

Before the planting season, each community appoints a committee of five growers to select the variety to be planted the coming season. The decision of the committee is final. At harvest time, the growers deliver their seed cotton to the ginner selected for the community. The ginner draws a sample for each bale from the press box. These samples are accumulated for the day. The following morning, the ginner takes the samples of the ginnings of the previous day to the central office in Victoria. At the office he receives the checks on his patrons' cotton sold the previous day. The samples are classed by the classer furnished under the Smith-Doxie Act. The samples are then arranged in the sales room according to communities. As the buyers appear, they are at liberty to arrange the samples of the lots they wish to bid on. All other buyers may bid on the lot assembled by any one buyer. In all cases, the bid is an average price for the lot. All bids are sealed. At the close of the sales period for the day, the manager opens the bids. He has the

power to accept or refuse such bids as have been made. Sales are strictly cash.

Each community receives its proportionate share of the returns on each lot in which it had cotton. With the average price as the base, the manager, with the schedule of "ons" and "offs" which he has established, computes the price per pound of each bale according to grade and staple length. Thus the classification service does not enter into the sales of cotton but into the calculation of the price per pound to the grower of each individual bale. This past season less than five per cent of the cotton of these one-variety communities was placed in the government loan. The data collected by John Saunders, the county agent, show that members have received a premium of about $5.00 a bale over the returns to the neighboring farmers who did not join the movement.

The story of the one-variety work in the Victoria area would not be complete without reference to the cooperation of the various groups involved. The farmers by growing a single variety in a community greatly simplify the ginning and the marketing of the cotton. Growers are adopting the best cultural and harvesting practices. A marked improvement in the grade of the cotton has been noted with each succeeding season in the program. Growers realize that improvements in quality bring premiums in the price.

The ginners included in the program are cooperating wholeheartedly. They are performing first class service. Last season, with a total volume of 15,000 bales, only 60 bales were below par in the quality of ginning. The fact that the ginner is responsible for the taking of the samples at the gin and the delivering of the samples to the central office and for the distribution of the proceeds of the cotton sales to his patrons makes him an integral part of the program. Included in the 17 gins are independent, oil mill, and cooperative gins. The cooperation among these gins is excellent.

The role played by the Federal Government under the Smith-Doxie Act is an important one. The classing service is furnished without charge to the growers. The services of these classers are essential in the plan followed in making settlement with the growers. As the program was adopted, disruptions resulted in the usual methods of trading. At first the local buyers were lacking in enthusiasm. But the local buyers are now supporting the plan. Several of these buyers instead of buying for large merchants are now rep-

resenting cotton mills. Thus more direct contacts are being established between the producing area and the cotton mills.

Several other areas in Texas have adopted marketing methods comparable with those in Victoria. Growers of many local markets are manifesting a keen interest in organizing their communities under the general plan of the Victoria area.

Much of the success of the Victoria program must be ascribed to the county agent, John Saunders. Much credit is due also to M. C. Jaynes, cotton specialist; E. A. Miller, agronomist; and F. E. Lichte, cotton gin specialist, of the Texas Agricultural Extension Service.

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COMMENTS ON SAMPLING TO INCREASE THE USEFULNESS OF FARM MANAGEMENT RESEARCH

THE NOVEMBER 1940 issue of JOURNAL OF FARM ECONOMICS, contained an interesting article on the subject of sampling and other procedures to increase the usefulness of farm management research.[1] The subject was also the topic of discussion at one of the round-table conferences at the 1940 Annual Meeting of the American Farm Economic Association. The particular type of sampling proposed was the stratified-random method.[2]

Most research workers in farm management are in general agreement as to the validity and general usefulness of the stratified-random method of sampling. There is some disagreement, however, to the idea that all farm management research, in order to be valid, should conform to the stratified-random sampling method.

Some of the objections to the stratified-random method of sampling and obtaining data, as compared to other methods, is in its added field collection expense, administrative difficulties, and memory bias. In some types of studies, the merits of data obtained by

[1] Wylie D. Goodsell, Raymond J. Jessen, and Walter W. Wilcox, Procedures which increase the usefulness of farm management research. Nov. 1940, 22(4): 753–761.

[2] See also Z. R. Pettet, Charles F. Sarle, and Irvin Holmes, JOUR. FARM ECON., Feb. 1939, 21(1): 354–374.

the farm survey as compared with those obtained through records kept by cooperating farmers are also involved in the consideration of sampling techniques.

The type of farm management research discussed in THIS JOURNAL and at the 1940 Annual Meeting was premised primarily on the survey method of obtaining representative data. No consideration was given to the usefulness of information obtained from the records kept by farmers who volunteered to cooperate in extension projects in farm accounting and in special research projects in farm management where data are not obtained by random sampling. One might make the inference, however, that the authors of the article in THIS JOURNAL minimize the usefulness of much of the farm management data obtained through farmer-kept records because such data are not representative of the region or universe.

In actual practice it would be difficult to obtain the participation of farm account keeping farmers who would be so located as to constitute a representative sample. The question then arises as to how near the account keeping farmers in a region may approach a representative sample and also how near the sample assuming it to be of sufficient size, has to be representative in order to be able to establish certain principles of farm management which may be useful to farmers in operating their farms, farm operators and to farm leaders in guiding public policy. The ideal situation to be sought for, of course, is a representative sample of the situation or area to be studied. Actually, however, in some studies farmer-kept records are so necessary that a farm management research worker may have to compromise between the ideal sampling procedure and the one that is possible in the particular project. Examples of such projects are pasture studies, dairy and poultry production studies, and time studies of machinery use and man labor.

The validity of generalizations on the principles underlying entrepreneural decisions, based on data from farms that are not representative of all farms, such as farms where farm accounts are kept, depends to a large extent on the nature of the relationship between the independent and the dependent factors. If the relationship between the two factors, within the usual range, can be represented by a straight line, then the conclusions relative to the effect of changes in the causal factor would be approximately the same regardless of the representativeness of the sample. If, however, the relationship between the independent and the dependent factor is

curvilinear, then the shape of that curve and the position of the sample on that curve would have an effect upon the conclusions drawn. Most of the relationships between independent and dependent factors in farm management studies are fairly straight lines, within the usual range of the factor, so the principles developed from data obtained on "better than average" farms should be reasonably valid for generalizations for the entire universe. Examples of such relationships that are reasonably straight lines, would be the relation of the crop yield index, the livestock production index, labor efficiency, and operating efficiency to farm earnings.

In many farm management studies, the research worker is usually more interested in developing farm management principles such as the relation of certain factors to farm earnings, rather than in obtaining averages which would be representative of an entire universe such as a county, state, or nation.

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RECEIVED JANUARY 22, 1941

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REVIEWS

Population: A Problem for Democracy, Gunnar Myrdal. Cambridge, Mass. Harvard University Press, 1940. Pp. 237. $2.00.

This little volume, by the well-known Swedish economist, comprises the content of The Godkin Lectures of 1938 at Harvard University. The lecture style has been retained. The result is a non-technical, lucid presentation.

After a brief review of the major population theories of the past, the author uses his native country of Sweden as the laboratory unit for a discussion of the present population problem facing most of the Western World. "Today," he says, "the problem is how to get a people to abstain from not reproducing itself." As early as 1925 the birth rate in Sweden dropped so low that the population was not reproducing itself, and at the present time the net reproduction rate has fallen "to less than three-fourths of that necessary to maintain a stationary population balance." Moreover, the downward trend of the past will probably continue, the author thinks, unless very powerful steps are taken to halt it. Of the Swedish situation, he says: "I do not believe we ought to be surprised if the population should attain its maximum and start to fall within the next ten years, and if the net reproduction figure should drop to 50 per cent, which would mean that the potential stock of Swedish population would be diminished by half in one generation."

He views the differences in fertility rates in the various countries of Western society as being similar to the differences existing in the various districts and social classes in Sweden, and since there has been in evidence for a considerable period of time downward trends in all segments of the Swedish population, he predicts that in time there is very likely to be a decline in the fertility rates of practically all countries of Northern Europe and North America to a point below the rate which must exist if a population is not eventually to disappear. He believes, of course, that the development of such a situation can be prevented by rational planning, and the adoption of a widespread program of social reform aimed specifically at halting present and prospective trends in fertility. His major purpose is to point out some of the effects of a declining rate of reproduction, and to lay a part of the foundation for the development of a positive population policy in a democracy.

One of the major effects he predicts will be an ideological crisis in

opinion. "In the long range, as I anticipate, this ideological crisis will have revolutionary effects upon all social policy and upon men's attitudes towards all sorts of human problems. After this crisis, which must occur in Western Europe within the next few decades but in America may be considerably deferred if the fall in fertility is not very rapid, the population problem will come to dominate all social life." A weakness of the presentation is that the exact nature of this ideological crisis is not explicitly set forth. By implication, however, it will spring from an anxiety on the part of the individual for the future of his country or of society in general, and will be a clash along the lines of the radicals versus the conservatives, with the latter doing an about-face if the population is to be maintained.

The predicted radical versus conservative clash can be visualized most readily by contrasting Malthusian and present-day population theories.

According to Malthus, poverty and misery was a result of nature. Population increased faster than the food supply in the long period. Hence, the plight of the masses could not be permanently improved by changing property rights, or otherwise altering the institutional framework of society. The mass of mankind was doomed by nature to live in misery and squalor. This was one of the most conservative doctrines inherited by the modern period, and was opposed to the doctrine of natural rights which was the foundation stone of the American and French revolutions.

Present-day population theory not only recognizes birth control as a fact permitting meaningful social reforms, but also as an actual necessity for the improvement of the lot of the lower economic classes in society and a desirable measure for improving the quality of the population. Of more importance, however, is the view that declining fertility rates, as a result of birth control, are becoming a threat to the future of Western society, and that consequently there is need for social reforms which will encourage larger families especially among the urban middle-classes. Hence, modern population theory not only refutes the Malthusian logic, which was to the general effect that social reforms were meaningless because of the natural rate of increase of man compared to the natural rate of increase of food, but actually demands far-reaching social reforms in order that even a stationary population may be maintained.

When these demands become articulated by popular opinion in a democratic society, they will probably be posed in such practical

terms as pressures on government for greater aid in providing the individual family with better housing, better medical care at lower cost, greater assistance for the old and infirm members of the family, greater educational opportunities at lower parental expense for children, and greater security of income for the earning members of the family. Such demands are in the radical, not the conservative tradition. This appears to be the essence of the ideological crisis, which Myrdal predicts as one of the effects of a declining population.

The other effects which he visualizes are more prosaic and commonplace in population literature. They include: a likely decline in the rate of investment; "a restrictive effect upon *young people's opportunities for advancement*"; greater conflicts of interest between the young and the old workers; and greater barriers to migration from rural to industrial occupations, with consequent increased poverty in agriculture.

He pleads for a rational recognition of the implications of present population trends, for further study of his hypotheses and predictions, and for the development of a thoroughly democratic *positive* population policy as a substitute for the present drifting and "hush-hush" attitude. Whatever verdict future developments may pass upon Myrdal's views, no one can question the wholesomeness of his motives, the sharpness of his analysis, or the lucidness of his presentation. The intellectual level of the American population would be noticeably raised by a widespread discussion of this book.

JAMES G. MADDOX

Farm Security Administration

Government Spending and Economic Expansion, Arthur E. Burns and Donald S. Watson, Washington, D. C.: American Council on Public Affairs, 1940. Pp. 176. $2.50.

This little volume is a careful and courageous analysis of the theory of government spending. It is disarmingly frank and direct in its discussion of certain popular misconceptions of the evils of government spending, and its conclusions are free of the traditional conservatism which has characterized so many of the writings on taxation and government spending problems in recent years. It is scholarly, stimulating, timely, and deserves a thoughtful reading by economists and agricultural and business leaders.

The volume traces the development of the present governmental spending program, showing how it has evolved to its present status. The authors divide this development into six periods, showing the strategy of recovery policy and the tactics followed in each. The first period is that prior to 1914, in which it was held that it is not necessary for the Government to do anything, because business recovery is automatic. The second period, extending from 1914 to 1929, had as its basic strategy the maintenance of banking liquidity, and Federal Reserve policy used the tactics of regulating banknote issues, requiring minimum banking reserves, and establishing and maintaining a central banking system. The strategy of the third period (1930) was to restore business confidence; and the tactics used included the issue of pronouncements such as "Prosperity is just around the corner." The fourth period (1931–1932) was one in which the depression had proceeded in earnest, and the strategy was to hasten liquidation so as to restore the healthy relationship between costs and prices believed essential to sound business recovery. The tactics were deflationary ones consisting of reduction of government expenditures, restriction of imports, encouragement of wage and price reductions, and strict adherence to gold standards. The fifth period (1933–1934) was characterized by a reflationary strategy in which the Government would wait for the low point of the depression to be reached and then prime the pump of recovery through public spending. The reflation tactics used were abandoning the gold standard, giving aid to credit institutions, encouraging and legislating wage increases, raising prices, and inaugurating a public works program, but continuing economy in regular government expenditures. The sixth period covering the years from 1935 to the present, has as its chief strategy the stimulation of investment activity directly by large government spending. It is in this period that expenditures have increased greatly and spending has become the major policy of the Government to induce recovery and economic expansion.

The authors point out that it is not important whether the spending is public or private, or for war or peace. The important thing is the amount of spending. The authors show that private investment and spending declined after 1929, and indicate that government spending has been largely an attempt to replace the private spending and investment which occurred earlier. For example, the adjusted total income-producing expenditures that offset saving

(plant and equipment, private housing and nonprofit construction, change in inventories, foreign balances, government expenditures, and change in consumer credit) averaged between 11 and 17 billion dollars annually during the 1920's, and net national income ranged from 57 to 81 billions. However, during the early 1930's, income-producing expenditures dropped to less than 3 billion (1933), and net national income dropped precipitously to 40 billion, or less than half the 1929 peak. Hence the conclusion that it is the amount of spending which is important, not who does it or for what it is spent and that spending is absolutely essential for a large volume of business and a high national income in our economy.

The major weaknesses in our government spending policy, beginning with the 1930's, according to Burns and Watson, are (1) we began heavy spending too late, (2) we did not spend enough, and (3) the spending program was too uncertain and based on a temporary or "emergency" standard. The failure of the Government to spend enough and the failure of the Government to grasp the initiative demanded by the situation are two of the great mistakes of the 1930's, and the authors re-emphasize these points continuously throughout their book. They point out that there is considerable evidence of a changing spirit of capitalism, and that the two major influences which have operated in the past to give our economy the expansive trend which it possessed—namely, (1) extension of markets and new resources, and (2) population growth—can no longer be expected to exert the influences they formerly exerted, but that the third influence—namely, technology—probably can be expected to rise in importance again, but just when it is impossible to predict. In the meantime, the economy is depressed and the Government must act. A "compensatory" fiscal policy is not enough. The only appropriate fiscal policy, according to the authors, is to offset the retarding influences holding up capital outlays by a secular spending policy. With large-scale armament building now a reality, the authors indicate that economic expansion may be resumed, not along traditional lines but under the stimulus of huge governmental outlays in connection with the armament program. This, they say, may be the new "outside force" which is always needed to keep expansion going.

Too little has been written in the literature and discussion of the spending problem about the appropriate volume of spending. This is not difficult to understand, because it has been generally held in

this country that any considerable spending by government is bad, and therefore government should spend as little as necessary to keep the economic ship afloat. Burns and Watson attempt to analyze the problem of determining what is the proper amount which should be spent, given a particular situation or period. The authors discuss briefly Keynes' Theory of the Multiplier, and briefly analyze the conditions essential for the Multiplier Principle to operate effectively. The authors admit that it is difficult to determine accurately the appropriate volume of spending, and they do not indicate any practical means for doing so. They conclude, however, that spending in moderate amounts of 2 or 3 billions a year, as we did in 1934 and 1935, serves to maintain business activity or even to increase it slowly, but does not bring about recovery. It requires upwards of 5 billion or more a year, continued as long as necessary to bring about economic expansion.

Since the authors contend that the future of America depends on economic expansion and that continued stagnation transforms itself rapidly into decline and decay, they argue for a vigorous large-scale program of public spending, established as a permanent policy to fill the long-term gap caused by stagnant private investment. In view of this emphasis upon increased public spending, the volume would not be complete without an analysis of the economic implications of our rapidly expanding national debt. The authors point out that the burden of the public debt should not be figured in terms of gross or total debt or total interest burden, but rather in terms of the ratio which such debt or interest burden bears to the national income. They point out that in 1939 the interest on the Federal debt comprised only 1.57 per cent of the national income paid out, compared with .83 per cent in the peak business year of 1929. They argue furthermore that not only is the present interest burden a very small proportion of the national income, but that large-scale deficit spending is certain to raise national income and is bound to diminish the relative burden of interest payments, even though total interest payments may be larger. "As long as interest can be paid on the public debt without difficulty, there is no cause for alarm at the size of the debt. We can, it must be said, view an increasing Federal debt almost with equanimity." It may be said that while the authors are probably sound in this conclusion, there must be considerable educational work done with the general public if widespread acceptance of this policy is to be secured, because at the present time

the average citizen views the expanding Federal debt with considerable alarm and does not understand the nature of the real interest burden or the significance of the relationships between heavy public spending and the smooth operation of the economy.

In Part IV, "The Outlook," the authors point their discussion forward to the probable consequences of increased governmental spending which will accompany our war efforts. They conclude that regardless of the temporary possible boom effects of war spending, initiative will in any case probably remain in government hands, not only during the present shift to armament spending but also in the virtually inevitable transition back to "normalcy" in the next postwar depression.

This reviewer feels, after reading this small, well-written volume, that the authors have taken a very sane and open-minded attitude toward the important question of government spending and its effect upon economic expansion. The authors might have entitled their book "Public Investment and Economic Stability," since they argue that the prodigious waste of idleness during the 1930's (waste of both human and capital resources) represents the real cost of depression and unemployment, and that what the Government spent belatedly in attempting to cut down this enormous cost of idleness was not lost, but rather saved, because spending put idle men and machines to work. "Had more been spent, the 1930's would have cost less." Or, they might appropriately have used the title, "Economic Consequences of Public Pennypinching," since they argue that the Government has spent too little and has failed to fulfill effectively its duty of bringing about business recovery and economic expansion, so vital to our modern economy.

R. R. RENNE

Montana State College

Wartime Control of Prices, Charles O. Hardy, Washington, D. C., The Brookings Institution, 1940. Pp. 216, $1.00.

This compact volume of 216 pages summarizes a study of wartime price control made by the Brookings Institution at the request of the War Department. It provides the clearest and most understandable treatment of our experience with price control during World War I that I have seen anywhere. Its suggestions for price control policy, if we get drawn into World War II, are somewhat less satisfactory.

Half of the volume—pages 111 to 213—is devoted to a brief summary and appraisal of our experience with price control during 1917 and 1918. This section (which might well be read first) is an exceptionally fine condensation and appraisal of the existing materials and throws new light on the objectives and achievements of those war-time agencies. After sketching the controls of prices of basic materials, foods, fuels, and rents, the outstanding conclusions are:

(1) The centralization of government and allied purchasing was necessary and was effectively accomplished.

(2) The controls of basic prices were in general effective, but in many cases the flat-price method resulted in over-paying low-cost producing units, when a pooling method, such as was actually used in sugar, would have prevented many unjustified tremendous profits. (The excess-profits tax proved ineffective in recapturing these profits.)

(3) The detailed control of food and fuel margins, and of local rents, probably went far beyond what was necessary to deal with the actual problems.

(4) Too much attention was paid to prices and not enough to supply allocations or rationing.

(5) Fiscal and financial policy was not adequately correlated with price control, and inflation due to fiscal operations could not be checked by price controls.

The first half of the volume covers desirable price control policy in a new war period such as the present. It properly stresses the dominant place of fiscal policy over direct controls, and the possibility of the use of indirect controls instead of direct ones. It emphasizes the basic need of expanding various industries for defense purposes, and, where necessary, of shifting productive energy from peacetime needs to defense needs. It also recognizes the fact that when we are operating far below full employment or full use of our productive resources, we can have both guns and butter. If we expand total production fast enough, we can have both defense *and* an increased standard of living, without sacrificing one to the other.

Although these facts are recognized at spots, the emphasis in much of this first section seems wrong to the reviewer. Many of the recommendations seem to be recommendations as to how we should have controlled our economy for World War I, rather than how we

should organize for defense or war in World War II. Despite the recognition of great slack in our economy still to be taken up, many of the recommendations look to immediate action to control prices or wages, as if that slack did not exist. Taxes are discussed as controls on consumer purchases, with no recognition of the relation between the *kind* of tax and its effect on consumption (p. 32). The statement is made that if defense is financed by printing money, the total supply of money increases relatively to the supply of goods in general, without any concurrent recognition that so long as we are operating below full capacity, expenditure from any source except consumer taxation may serve to expand the volume of goods rather than to produce inflation (p. 30). The recommendation is made (p. 55) that all existing restriction of hours and limitations on farm production should be abandoned as soon as war (or a defense program?) is entered upon, despite the obvious fact that the present war does not solve, but aggravates, the cotton, wheat, and tobacco surpluses, and that it may be many months, or even years, before anything like full employment is restored, even with defense expenditures. In view of the fact that Hardy clearly recognized (p. 143) that under present conditions war would not cause shortages in most farm products, farm economists may be inclined to wonder why E. G. Nourse approved the book as Director of the Institute, without clearing up these inconsistencies. Many of the earlier portions of the book over-emphasize the immediate needs for restraints, on farmers, on labor, etc., and under-emphasize the possibilities of expanding production.

Despite these defects of emphasis, the book as a whole is a substantial contribution to the literature of economic control in time of war. For those who will read it with discrimination, and not as a Bible to be followed blindly, it is an important book for study.

MORDECAI EZEKIEL

U. S. Department of Agriculture

Government and Agriculture, Donald C. Blaisdell. New York, Farrar and Rinehart, Inc., 1940. Pp. 202. $1.50.

This useful and stimulating little volume by Donald Blaisdell, who was assistant to M. L. Wilson for four years, presents a survey of activities of the government in relation to basic agricultural problems. Primary attention is naturally given to the programs of the Federal Government. In order to cover this subject in the

available space, the author necessarily devotes a limited amount of attention to many topics.

Although the author discloses his sympathy with the majority of the objectives and procedures of the New Deal agricultural programs, he raises a number of questions concerning the adequacy and effectiveness of various policies.

Some may feel that in his description of agricultural problems, the author, while properly emphasizing the need for adjustment between agriculture and the rest of our economy, does not fully take into account the degree to which the same basic causes have been in no small measure responsible for reduced business incomes, increased unemployment, and low farm incomes.

Many will disagree with the implications concerning the effectiveness in the solution of basic problems of certain policies such as the adjustment programs and some of those of the Farm Security Administration. Some will question the author's analysis of "democratic methods" in the administration of the agricultural programs, but the problems of administrative relationship between the Federal Government and the states and local units are clearly shown.

A study of the scope here represented almost necessarily includes some observations, points of view, and interpretations of statistics with which any individual will differ. These, however, do not destroy the usefulness of this broad survey of agricultural problems and national efforts at their solution.

M. P. CATHERWOOD

Cornell University

Public Administration and the United States Department of Agriculture, John M. Gaus and Leon O. Wolcott. Chicago. Public Administration Service, 1940. Pp. 534. $4.50.

Public Administration and the United States Department of Agriculture is another in a series of studies in administration sponsored by the Committee on Public Administration of the Social Science Research Council. Its authors, drawing upon considerable experience in the field, have produced a well written, complete and comprehensive volume dealing with one of the most important agencies of government.

The volume is divided into three parts. Part I deals with the evolution of the Department and includes chapters on origins

(1862–89); growth and variety of activities (1889–1913); policies and efforts at integration (1913–39); and on personalities and factors influencing the evolution of the Department. In this connection special reference is made to Senator Morrill and Congressman Lever, to Secretaries Wilson, Houston, and the two Wallaces, and to Presidents Lincoln, Wilson, and the two Roosevelts. The authors emphasize the continuity of agricultural policy throughout the entire history of the Department, notwithstanding changes in Department control, and suggest that the necessity for the 1933 "New Deal" was due in large measure to the incompleteness and ineffectiveness of the Civil War "New Deal." They conclude that pre-"New Deal" functions of the Department were wider in scope than generally recognized and involved more "action" than commonly supposed. The Department is described as having "come of age" with the "Mount Weather Agreement" of 1939 with its relationships well established and its functions clearly defined, although subject to "continuous organization."

Part II deals with the "substantive activities" of the Department including chapters on "Production" (21 pages), "Land Use" (45 pages), "Marketing and Distribution" (66 pages), "Rural Life" (28 pages), and "Agricultural Credit Facilities" (8 pages). All of these are interesting, comprehensive and clear discussions of such important problems as production control, public land policies, conservation, land use, consumer protection, disposal of surplus commodities, nutrition, the farm home and the rural community, disadvantaged rural classes, and agricultural credit. Attention is also given to the research and extension activities of the Department. A brief discussion of the various bureaus, etc. responsible for administering this multiplicity of activities is contained in still another chapter which raises some questions as to the need for coordination of line agencies and suggests a "job analysis" of regional offices, programs, and relationships to state and local agencies.

A number of excellent illustrations of "The Department at Work" are included in this section.

Part III is entitled "The Resulting Department of Agriculture." It raises the question as to whether or not there is a "Department of Agriculture" or merely a "Family of Bureaus." The question is also raised as to the place of certain organizations and functions and their relationship to the Department. The remainder of Part III is devoted to chapters dealing with "The General Staff," "Auxiliary

Services," and "The Department in the Light of Current Problems."

The latter chapter is certainly one of the most important from the standpoint of current interest. The authors find that the forces that have contributed through the years to an increase in the Department's activities and that have widened their variety are still present and have been strengthened by prevailing world conditions that promise to make agricultural adjustment in the future more urgent and more difficult. Major responsibility of the Department in the future is believed to be that of canalizing "the drive and energy of the pressure groups in agriculture so that they will be less harmful to our economy generally and will contribute to the best use of our natural resources, to the most satisfactory rural life, and to the most economic supply of agricultural products most useful to the consumer." The Department must serve not merely as an "inert and passive transmitter of contending and conflicting pressures," but as an active agency in defining objectives and in making adjustments. In other words, the Department can hardly avoid heavy responsibility for economic and social planning in the future.

The appendix includes a chapter on budgetary administration written by Verne B. Lewis as a Master's thesis at the University of Minnesota and copies of a number of documents dealing with organization, relationships, general staff, auxiliary services, and standards.

It is difficult to find fault with such a well written and comprehensive contribution to the field of public administration, and indeed this reviewer has no criticism to make of the volume. As a member of the staff of the Clemson Agricultural College, however, he regrets the absence of any reference to the name of Thomas Green Clemson even in the elaborate and helpful footnotes throughout the book. In this connection the authors are referred to the Quarterly Journal of Agriculture (Volume VIII) for January 1860, to H. B. Learned's book, *The President's Cabinet*, and to *Thomas Green Clemson: His Life and Work*, by Holmes and Sherrill.

G. H. AULL

Clemson Agricultural College

Administrative Decentralization, David Bicknell Truman, Chicago, The University of Chicago Press, 1940, Pp. xvii+211, $2.50.

Much may be learned outside of the City of Washington about our National Government. This is particularly true of the United

States Department of Agriculture with more than eighty-five per cent of its employees located in the field. The multiple activities and programs of this Department have been initiated and stimulated by the needs and demands of agriculture. This fact becomes clearer as one examines the response of the National Government to the agriculture of a particular region. The pattern of field activities of the United States Department of Agriculture at Albuquerque is quite different from the pattern at Boston, or Atlanta, or Chicago.

Truman's Administrative Decentralization is based upon a study of the Chicago field offices of the United States Department of Agriculture. He has related these offices and their work to the great agricultural region west of Chicago from which hogs, cattle, wheat, corn, sheep, fruits and vegetables move to Chicago and through Chicago to the great markets of the east. "Lake Michigan, thrusting its three hundred miles of deep water like a dam across the dominant flow of goods from the central plains to the northern Atlantic states, means that produce moving from the west to the northeast must cross the water or go around it. In either case the city at the foot of the lake was benefited." (p. 46). The special relationship of Chicago to a vast agricultural area has largely determined the location of field offices of the United States Department of Agriculture in that city and has colored the relation of those offices to the region and to the center of the Department at Washington.

Against the regional background of field activities in Chicago Truman discusses the general problems of decentralization, relationships between headquarters and field, relationships of field offices with private groups, the problems of field coordination and cooperation and the problems of decentralizing power and authority. The resulting book gives us a new and important view of the Department of Agriculture and a valuable discussion of the broad problems of Administrative decentralization.

LEON O. WOLCOTT

Commodity Credit Corporation

The Economics of War. Horst Mendershausen, New York: Prentice-Hall, 1940. Pp. xiv+314. $2.75.

The book under review grew out of a course in war economics given by the author at Colorado College and a series of public lectures delivered by him. Consequently the presentation is popular

in character. It is not new research or a theoretical investigation of war economy, as one might conclude from the title. It is rather a comprehensive presentation of the various economic and financial policies that must be applied in order to adapt a peace economy to war requirements rapidly and without excessive and unnecessary dislocation of national economy as a whole. The author not only examines alternative policies from the point of view of their best service to war ends, but tries to present carefully their effects on the national economy as a whole and on the interests of various groups of economic society. And in his analysis, he never forgets that a war economy must be liquidated at a later period.

The book is divided into four parts. The first part discusses the general problem of what a warring nation needs. This part is presented under such headings as man power, raw materials, facilities of production, distribution, transportation, and finance; and finally the problem of economic mobilization.

Part two, the core of the book, deals with war economy in its narrow meaning. After contrasting military against civilian demand and discussing factors limiting total national output under war conditions, the author emphasizes the necessity of a rapid and thorough reorganization of the whole system of private economy in order to meet war requirements. Alternative systems of financing the war are carefully considered, as well as various priority schemes and their functioning, price controls, and rationing of consumers goods. Here he presents also the reasons why it is not possible in wartime to restrict government control to the few fields directly connected with government orders and finance, and points out the necessity for far-reaching government intervention and thorough control of the whole economic mechanism.

In the third part are discussed international aspects of war economics, such as foreign trade, shipping, and the position of neutral countries in the war economy. Finally, part four deals with postwar economies and such problems as those of economic demobilization and postwar finance.

The book covers a wide range of important problems of war economy, many of them illustrated by references to actual experiences of various countries during the World War of 1914–18. If the author does not undertake new research, he has at least made considerable use of the large number of specialized studies of the previous war.

Mr. Menderhausen's book must be commended as a not too technical presentation of the problems of war economics. The author is sufficiently careful in his analyses, and always tries to give a well-balanced presentation of arguments for and against alternative policies. Sometimes, however, his analysis is superficial, perhaps because he tries to cover too wide a field in the small space allowed in a book for the general reader. For instance, the question of foodstuffs in war is discussed in less than three pages. So brief a treatment may leave the reader with a wrong impression on such problems as the effect of German efforts to reduce her dependence on foreign foodstuffs. However, it would be wrong to accuse the author of wishful thinking. His belief in the ultimate values of democratic principles does not blind him to the relative advantages of totalitarian states in economic mobilization or short-run economic adjustment to war requirements. Various examples are cited both from the previous and the present wars to show how frequently democracies have failed to adjust rapidly their economic systems to the imperative requirements of war. Generally speaking, the author emphasizes the necessity for democracies to accept certain features of the economic policy of totalitarian countries and to be ready to make the heavy sacrifices required by war.

However, in discussing the problem of postwar settlement of international debts, he points to a possibility of repaying these debts without sacrifice for the postwar generations by merely creating new money in time of widespread unemployment. After suggesting this highly controversial theory, the author should feel obliged at least to clarify it, but he does not do so. In a book for a general reader, it would be far safer to omit such attractive theories completely rather than to launch them without careful discussion of all their limitations. But it should be repeated that the author is usually careful not to expose himself to such reproach.

V. P. TIMOSHENKO

Food Research Institute, Stanford University

Wheat Subsidization and Exports, the Experience of 1938–39, V. P. Timoshenko, Stanford University, California, Wheat Studies of the Food Research Institute, Vol. XVII, No. 2, October 1940. Pp. 39–99, $1.00.

The study may be briefly summarized as follows: (1) Wheat exports were subsidized during 1938–39 by practically all the principal exporting countries, although action of the United States repre-

sented the clearest case of direct export subsidy. (2) As a result of this competitive subsidization British wheat prices were depressed about 3½ s. per quarter or 10 cents per bushel, all of which the study attributes directly or indirectly to the United States program. (3) The depression of international wheat prices partly defeated efforts of exporting countries to raise prices for their own wheat growers, and made the costs of these efforts excessively high. (4) Competitive subsidization of exports threatened to continue at great losses in 1939–40, but was prevented by the onset of the European war. (5) Extensive study of the experience with competitive export subsidization in 1938–39 yields little support for this approach to the problem of coping with export surpluses of wheat.

Two methods were used to determine the extent of the depression of international wheat prices. One of these methods purposed to compare the level of international wheat prices with reference to supply-demand relationships on world wheat markets in 1938–39 with other post-war years. For the price factor, prices of British parcels were used. For the supply-demand factor, year-end carryover stocks were used, as this factor was considered a balancing item between the world supplies of wheat for a crop year and its disappearance during the year. However, for the 1938–39 year it was considered necessary to deduct the estimate of the stocks accumulated by European governments because these did not cause wheat disappearance or a reduction in the year-end wheat carryover. The alternative method, which eliminated European carryovers and thereby eliminated the problem presented by the accumulation of security stocks, consisted of including year-end carry-overs in only the four chief wheat-exporting countries.

As usual, in this detailed exposition the Institute makes a distinct contribution to the quantity as well as the quality of available materials relating to wheat price movements. With the specific quantitative conclusions respecting the incidence of the wheat subsidy, however, this reviewer cannot agree. The evidence on which the conclusions rest, as for example the chart on page 82 showing a purported relation between wheat stocks and prices, is not convincing. Moreover, both the theory of subsidy incidence and other statistical analyses point to a smaller effect upon world prices than is indicated in the Institute's analysis. This contrary evidence, however, cannot be presented in this brief review.

R. E. POST

Bureau of Agricultural Economics

American Cooperation, 1940, Charles W. Holman and A. Randall Sanford, Editors, Washington, D. C. American Institute of Cooperation, 1940. Pp. 785, $3.50.

"American Cooperation, 1940" is a well-edited and printed volume containing the 118 papers presented at the 16th annual session (1940) of the American Institute of Cooperation. Perhaps in no other publication can as comprehensive a cross section of the current thinking of both laymen and professional people regarding cooperation in America be obtained including its latest developments in the fields of credit, medicine, and among college students. The papers presented represent interests ranging from social philosophy to the practical operating aspects of cooperatives.

The unsophisticated student of cooperation is duly cautioned by the following statements by the editorial board in the foreword: "the trustees of the Institute do not assume responsibility for opinions voiced during the sessions and printed in this volume" and "the papers often give expression to widely divergent viewpoints on controversial topics."

Although many readers will miss a detailed index, they will find the grouping of the papers in the book and in the Table of Contents a convenient guide.

Teachers of Cooperation will find this and previous volumes of American Cooperation useful sources of reference material and collateral reading. Teachers of vocational agriculture will find the ten papers on this subject in the current volume of particular interest.

FRANK ROBOTKA

Iowa State College

Marketing Cooperatives, Donald F. Blankertz, New York, The Ronald Press Company, 1940. Pp. xiv+488. $4.00.

The scope of this book is somewhat wider than its name may suggest. Over one-half the space is devoted to farmers' selling associations, but more than a quarter of the book deals with cooperative purchasing, credit, insurance, housing, health and many other cooperative services.

This is an excellent text for the reader desiring a comprehensive survey of the development and present status of all kinds of cooperation in the United States. It is a good introductory description for

the person who knows little about cooperation. The diversity of references and quotations indicates the author's wide study of written sources on the subject. In a field afflicted with bias and over-enthusiasm, he has preserved a commendable degree of common sense and good judgment in balancing conflicting views.

For the student who hopes to learn how to be a good member, director or employee of a cooperative, the book is likely to be a disappointment. It does not analyze the business problems of cooperatives nor present the kinds of facts needed in cooperative management. There is little attempt to analyze specific cooperative business situations or to determine the results of cooperative policy. It must be confessed that it is not what this reviewer had hoped to find in the latest book on "Marketing Cooperatives." In the following paragraphs the contents of the book are reviewed in part by a comparison of these contrasting methods of approach to some of the specific topics.

After the necessary first chapter on the meaning of cooperation, 80 pages are devoted to establishing it in historical and geographical perspective. The "evolution of associative efforts from ancient communal societies to the Rochdale Pioneers" is likely to prove a cold shower to the hot interest of youth in modern cooperation. The chapter on cooperative marketing in foreign countries is likely to meet with greater student interest, even though its significance in the study of American cooperatives is also doubtful. Most students and some teachers will prefer to skip to the fourth chapter which summarizes well the development of cooperatives in America. The three-page list of communal experiments in America documents scholarship, but will be skipped by even the least discerning student.

With these preliminaries disposed of, the next 150 pages discuss the policies and practices of farmer's selling cooperatives in the United States, which constitute the heart of so many courses in colleges of agriculture. The chapter headings include all those familiar in preceding texts in this field: types, principles, organizing, membership, finance, pooling, sales and advertising, legal.

An outstanding deficiency of this section is the absence of a comprehensive review and evaluation of the methods by which such associations have attempted to accomplish their purposes. There is scarcely a reference to the success of cooperatives in obtaining large volume and resulting economical operation, concern-

ing which ample evidence is available. No attempt is made to translate the old cry of "get the middleman's profits" into the principles of economical use of labor and capital.

The famous slogan of "orderly marketing" is not adequately disposed of in connection with a good discussion of semi-monopoly price control. Here attention is concentrated on fruit and vegetable prorate schemes; one would like also to find something on milk marketing and base-surplus plans. The clearcut conclusion that cooperatives cannot accomplish much through production and market control is a welcome exception to the general tendency toward descriptive, rather than analytical, writing.

The benefits of advertising by cooperatives are accepted without question.

Two-thirds of the chapter on membership relations consists of an excellent treatment of membership contracts. This overshadows a very sketchy coverage of what the author and this reviewer both believe to be a fundamental problem of cooperation—the maintenance of intelligent leadership and informed membership. Admittedly, this is far more difficult to reduce to clear conclusions.

The development of cooperative law in legislatures and courts is well reviewed. More useful to prospective members and managers of cooperatives would be an analysis of some of the unnecessary restrictions and hindrances upon sound business management frequently found in these laws. In the many states having more than one such law, some guidance is needed in the choice of that under which to incorporate.

The various methods of finance are described and the development of Federal financial assistance to cooperatives is well summarized. One looks in vain, however, for standards by which organizers might be guided in making a financial plan. Various sources of borrowing are listed, but the practical questions of interest rates, security and repayment plans are omitted. The much-advocated rotating plan of finance is described in terms of interest-bearing fixed-maturity certificates of indebtedness. The more commonly used certificates of interest are mentioned merely as a variation, "which, if satisfactory to an association, is less so to members."

The chapter on pooling includes a first-rate discussion of the types of pools and the practical questions of choice between them.

This quite belies several other statements which treat pooling as if it were solely an adjunct to orderly marketing.

The chapter on organizing is good as far as it goes, and includes a description of an actual experience in organizing. Left untouched, however, are the procedure of incorporating, the nature and content of bylaws, and the internal structure of control from members through directors, executive committee, manager, to employees.

In about 60 pages are summarized by commodities the development and status of cooperative selling associations in the United States. Livestock, grain and dairy products get separate chapters, and all the rest go into one. In about 85 pages is described the history and extent of consumer cooperatives, farmers' purchasing cooperatives, and cooperatives rendering 16 other types of service. The discussion of credit cooperatives relates to credit unions, and does not touch upon production credit associations and federal farm loan associations. The recent growth of petroleum cooperatives has crowded out any mention among farmers' purchasing associations of the important role of feed cooperatives in the Northeast. The descriptive material on consumers' cooperatives is supplemented by two interesting chapters on their principles and policies. Two closing chapters review the contents of the book in general terms, with special reference to farmers' selling associations.

The author writes less formally and more vividly than many. For this reader, the practice of mixing in footnotes many statements of supplementary information with references and citations detracts from the smooth pursuit of the author's ideas. The organization of the topics dealing with selling cooperatives does not seem logical for teaching. On the other hand, a detailed table of contents, numerous paragraph headings, and an index make it easy to find each topic. For the type of material which it presents, this book will prove a convenient text.

WHITON POWELL

Cornell University

Public Warehousing, John H. Frederick. New York, The Ronald Press Company, 1940. Pp. xii+301. $3.50.

A student who desires a general introduction to the field of public warehousing will find this book instructive and stimulating. The

author is interested in the broader aspects of the theory of warehousing as well as in describing its operation in selected fields. Whether the "traffic managers of industrial firms, sales managers whose distribution problems involve warehousing, banks, and county agricultural agents" to whom the book is also addressed find equal enlightenment is open to question. By the time a man becomes a traffic or sales manager, he should be familiar with this material and much more in his own field. Even so, there are few such who could not profit from getting Frederick's point of view.

The book considers in turn the general function of the warehousing industry, the general merchandise warehouse, field warehousing, cold storage, and special warehouses for household goods and for agricultural commodities, particularly grain and cotton. This material is interspersed with discussion of the Uniform Warehouse Receipts Act, the U. S. Warehouse Act, and bonded warehouses.

The student who wants an incisive and constructive treatment of warehouse problems from the point of view of the industry itself must look elsewhere. Some parts of the present volume are rather superficial and, in some cases, inaccurate. The impression is given, for instance, that cotton is generally sold on official class without inspection of samples by buyers, whereas this is the rare exception. The statement that "Every bale is branded or tagged with its weight and grade" applies to Brazilian, but not United States cotton. Occasionally the author elaborates the obvious where he might better give space to current developments of interest. As an illustration there is no mention, in connection with the discussion of the marketing of agricultural products, of the farm legislation of the last ten years. Farmers are still "weak financially," and are "unable to hold their products in storage on their farms but must turn them into cash as soon as possible after they are available for market." There is likewise no discussion of the very significant changes in grain, cotton and naval stores warehousing practices and rates brought about by the action of the Commodity Credit Corporation.

With all its imperfections, the book still gives the student a broad, general picture of the operations of an important link in our marketing machinery.

WIRTH F. FERGER

Commodity Credit Corporation

Land Tenure Policies at Home and Abroad, Henry W. Spiegel. Chapel Hill, University of North Carolina Press. Pp. vii–xii+171. $3.00.

The past few years have been something of a hiatus for agricultural economists in comparison with the early thirties. Then, the ideas and techniques that had been developed in the twenties met an effective demand and were squeezed dry in a few feverish years. Now, we are reestablishing our bearings, summarizing materials, appraising past performances, and hoping to discover new ideas. It is not a complacent breathing spell, however, for the old problems that are still with us and the tempo of world events remind us that this time we shall not have a full decade to get our balance before the next upheaval.

This characterization is well illustrated by recent land economics literature. The Ely-Wehrwein text stands out as an aid in reestablishing base-points and commands particular respect because it represents a cumulative effort of veterans. A score of journal articles and reports stress the appraisal of past research and the outlining of needed work. Old concepts are refurbished with new jargon, but relatively few works are distinguished by a fresh approach although the need is great for new ideas.

In a number of recent publications, the service rendered in this period of readjustment is that of sifting through the flood of data that lies about us and bringing some of the available materials into an organized form. That Professor Spiegel's book falls into this category is indicated in the preface where he states that the book is written "from a general point of view in order to convey information and to stimulate discussion of the issues involved" in land tenure policy. It is to be expected, therefore, that the book is marked neither by a novel approach nor by a decisive analysis.

The volume will present a new angle to those economists who have always simply taken property rights for granted. The author does bring together some legal and economic observations in an interesting way, relying heavily on Tiffany for legal materials and on Pigou for economic concepts. Also, in several instances he succeeds nicely in tying together some European and American developments.

For land economists, the best (and the longest) chapter is the last in which Professor Spiegel describes land tenure in his native Germany. In some spots, this chapter is somewhat strained, but

Americans will find it exceedingly useful. The chapter on English tenure deals with more familiar materials, but the data on the actual use of the much-described tenancy machinery will be new, and surprising, to many readers.

Among the better sections of the rest of the book are those on land tenure and collective action and on the lease market. Among the weaker are the section on forest land tenure and the chapter on "foundations" of tenure policy.

The careful reader will find a number of contradictions that should not appear in a book as short as this one is. Many will be disappointed with the treatment of share-cropping, the legal aspects of which are tossed off in a few sentences and the policy aspects of which are dismissed in a paragraph to the effect that a change in census terminology will eliminate share-cropping from being a tenancy problem. Another point of dissatisfaction will be that the legal concept of tenancy is adhered to throughout the book, although the devotion of a separate chapter to legal backgrounds raises the expectation that elsewhere the economic, psychological or other facts of the landlord-tenant relation might be shown.

That the book is heavily, though by no means exhaustively, documented is evidence of Professor Spiegel's scholarliness, his reticence with respect to observations on the American scene, and his adherence to the stated purpose of the book. Only occasionally does the author peek out from behind his breastwork of foot-notes. When he does, he reveals the conviction that any steps in the direction of intervention are bound to lead to ever-increasing restrictions on property rights in land, the belief that restrictions on "equalitarian inheritance" should not be invoked, and the hope that reliance on compulsion may be avoided in correcting tenure problems.

LEONARD A. SALTER, JR.

University of Wisconsin

Power Alcohol from Farm Products: Its Chemistry, Engineering and Economics, Geoffrey Shepherd and others,—Corn Research Institute, vol, 1, No. 3,—Iowa Agricultural Experiment Station, 1940. Pp. 283–375. Twenty-five cents.

Power Alcohol from Farm Products brings together in one book the basic facts and an analysis of the problem of production and use of alcohol as a motor fuel.

The first two chapters, "The Chemistry of Gasoline" and "Engineering Aspects," indicate, first, that the trend toward higher compression motors requires fuel of higher octane rating and, second, that ethyl alcohol made from farm products when blended with gasoline tends to make modern engines more efficient.

The authors estimate that ethyl alcohol can be produced from 50-cent corn for approximately 25 cents per gallon. At this price alcohol cannot compete with gasoline which can be purchased at the distilleries for about 6 cents per gallon. The authors explore the possibility of its use as a supplement to gasoline to improve the octane rating and anti-knock qualities.

The study has great value as background for the development of future public policy with respect to conservation of petroleum resources. Production of ethyl alcohol as a motor fuel is not economically possible except as related to a public conservation policy. Our petroleum resources are not inexhaustible and in spite of present large supplies, petroleum conservation should be the concern of the public.

An analysis is made of the effect that a program of blending ethyl alcohol with gasoline would have on the farm program and on the cost of motor fuel. The production of sufficient ethyl alcohol to make a 10 per cent blend with all motor fuel would have the effect of removing 400,000,000 bushels of corn. This of course would tend to raise the price of corn.

No attempt is made to analyze the effect on the petroleum industry of substitution of alcohol for 10 per cent or more of the gasoline. While such a program might have a large influence on the petroleum industry if applied suddenly, the effect might not be serious if applied gradually and timed with periods of slackening production or increasing demand.

Thus a public policy directed toward the use of large amounts of alcohol blended with gasoline would have to be tied in very closely with both a farm and a petroleum conservation program. It is quite possible that within the coming decade the situation in the petroleum industry will be such that the program outlined by by the authors can gradually be adopted as a public policy.

The suggestions of the authors have large potential possibilities and their report is a contribution to the future national conservation program.

HARRY C. WOODWORTH

University of New Hampshire

Accounting for Farm Costs, James William DaVault (Doctoral Dissertation at Columbia University—printed privately by the author) 1939. Pp. 151.

This book will be of little value to those without knowledge of the principles of bookkeeping. The author assumes this background and confines the treatment to an application of these principles to the subject of farm cost accounting. A rather exhaustive survey of literature in this field has been made and an excellent bibliography is included in the text. The book is confined largely to discussing the merits and demerits of the various approaches to each accounting problem, the author expressing judgment on the procedures that seem to him to be most desirable.

In the introductory chapter it is implied that a rather universal trend toward greater intensity in cultivation makes the application of cost accounting procedure increasingly important. The treatment overlooks regional differences where shifts toward more extensive methods of cultivation are definitely exhibited. The fact that cost accounting can make a contribution to the success of farms and ranches having but a single enterprise is not made clear.

The second and third chapters are concerned with proper procedure in the valuation of farm real estate and farm personalty, the fourth is a treatise on "departmentalizing" the farm, while the concluding chapter deals with problems in allocation of farm costs. Chapter 4 probably contains the bulk of the author's own contribution to ways in which current farm cost accounting practice might be improved. He introduces the concept of "departmentalizing" the farm business with the plea that most methods in common use tend to obscure the actual results being obtained on the farm in question. Depreciation charges are frequently based on rough estimates of inventory value rather than being taken from accounts with the items in question, capital and revenue charges may be intermingled, average costs as found on other farms may be employed for want of better data, and cost and income results for specific products of an enterprise are left undetermined.

The "departmentalizing" process proposed by the author may be illustrated by enumerating the accounts he deems necessary in an adequate study of a commercial hog enterprise: (1) Breeding Hogs, (2) Reserve for Expiration of Life of Breeding Hogs, (3) Cost of Maintenance of Breeding Hogs, (4) Breeding Hogs Expense, (5) Market Hogs, (6) Cost of Maintenance of Market Hogs, (7)

Cost of Pigs Farrowed, (8) Cost of Production of Hogs Marketed, and (9) Profit and Loss on Hogs. A number of these are, of course, supplemental accounts designed to isolate certain types of expense that should not be confused with other cost items. The concept introduced in this chapter has merit, but the reviewer feels that the process of "departmentalization" may have been carried to the point where but few farmers will follow. A major criticism of the book might be that too little attention has been given to consideration of the difficulties in the practical application of the theoretical principles discussed. The study, however, is well written and should prove useful to students of farm cost accounting.

NEIL W. JOHNSON

Bureau of Agricultural Economics

The American Agricultural Press, 1819–1860, Albert Lowther Demaree. New York. Columbia University Press. 1941. Pp. xxii+430. $4.00. Columbia University Studies in the History of American Agriculture, Number 8.

From a carload of source material, Professor Demaree has distilled a useful and sometimes delightful book about the many adolescent farm papers during the Nation's adolescence. The product is a bouquet of tidbits about our early agriculture and its practitioners that, in a sense, reflect their lives, attitudes, ability, problems, and history.

About John Johnston, the father of tile drainage in the United States, for example, his neighbors said that he "is gone crazy—he is burying *crockery* in the ground." The practice of planting by the moon persisted despite editorial fulminations against it. Whether wheat could turn into chess was a serious question for a long time. "Fevers" and "manias" about Berkshires and silk and Western migration and many another fad raged through all strata of agriculture.

Mr. Demaree, who is assistant professor of history in Dartmouth College, gives many more instances like those in his survey of early American agricultural literature; America's pioneer farm journal, *American Farmer;* program and policies of the farm press; the editors; special features; advertising; the "ladies' department"; rural poetry (without quotation marks); the agricultural fair, and significance of the agricultural press, the last a misnamed chapter in which the author misses an opportunity really to explain and

evaluate the importance of farm journals, then and now. The book contains, too, 28 selected articles from the periodicals (good reading, most of them, and a welcome compendium), and sketches of 16 important journals of the period.

But the work could have been more useful and delightful if the author were less scholar and more journalist; he is busy with the academic machinery of annotations and footnotes (788 in 9 chapters), and he fails to make the most of his rich, humorous, significant mother lode. His book is something of a museum of curiosities —good and useful and entertaining in a way, but subject to improvement through better organization and interpretation of his data and through a better definition of what journalists call the "problem" or "thesis" or "lead."

The book, in other words, lacks direction—no great fault, perhaps, except when logical questions are left unanswered: What part, exactly, did the agricultural press play in the lives of the pre-War population? What determined the prosperity or death of this or that journal? What about the mechanics of the papers? Demaree says, "The agricultural fair, like the agricultural journal, has exerted a tremendous influence upon American rural life." Again, "In historical retrospect, these neglected farm periodicals constitute an invaluable repository for economic and social historians who are eager to investigate almost any phase of American life during the pre-Civil War period."

Maybe.

A. D. STEFFERUD

Bureau of Agricultural Economics U.S.D.A.

NEWS ITEMS

Corn Belt Livestock Marketing Research

Fourteen states in the Corn Belt have laid plans to carry forward a regional project in livestock marketing research. This undertaking is a cooperative regional venture. The program involves 14 experiment stations and the Division of Marketing Research of the BAE. The first project under this arrangement is a study of the existing machinery used in marketing livestock, tracing the channels through which livestock passes from farms and ranches to processors.

Information will be obtained on how farmers buy and sell livestock and the types of outlets they use; marketing agencies and processors are being asked for information on volume of livestock, handling and operating methods and practices. This research program is being integrated by a committee of three members assisted by a representative of the Marketing Research Division.

Commodity Exchange Specialists Needed by Department of Agriculture

The United States Civil Service Commission has announced that commodity exchange specialists experienced in economic analysis and investigations of futures trading are needed to fill positions in the Department of Agriculture. The positions are under the Commodity Exchange Administration and pay from $2,600 to $4,600 a year, less the usual retirement deduction.

Specialists in economic analysis will plan and conduct economic research, often in cooperation with other Federal and State agencies engaged in similar activities, in all phases of futures trading in agricultural commodities. They will compile and interpret the data and prepare it for publication or further use. Specialists in investigations will plan and direct investigations of various aspects of commodity exchanges, including their operation, methods of trade, and price structure. They will assemble legal evidence pertinent to the enforcement of the Commodity Exchange Act, involving the investigation of futures trading and techniques.

Applicants must submit for consideration a copy of at least one writing, preferably dealing with agricultural commodity futures markets. In addition, they may be asked to appear for an oral examination to determine further their fitness.

Applications will be rated as received at the Commission's Washington office until further notice. Further information and application forms may be obtained at any first- or second-class post office, or from the Civil Service Commission, Washington, D. C.

Following some two years of preliminary study the Canadian Council for Research in the Social Sciences was established in 1940. The first organization meeting was held in September. The organization is sponsored by the Political Science Association, the Historical Association, the Psychological Association and the Canadian Committee of the International

Geographical Union. The membership of the Council consists of 16 persons, divided into three classes. In addition to representative members and members-at-large the constitution provides for associate members representing certain Departments of the Dominion and Provincial Governments. Agricultural Economists are represented in the organization by Dr. J. F. Booth, Chief, Economics Division, Department of Agriculture.

L. G. Allbaugh, Iowa State College, has been granted a leave of absence to take charge of the Farm Management Section of the Farm Security Administration in Washington, D. C.

W. Allen, Agricultural Commissioner for the Dominion Department of Agriculture in the United Kingdom returned to Canada last summer. In the Fall he again visited England to assist with the negotiations leading to the completion of several marketing agreements.

Grant E. Blanch, formerly of Utah Agricultural College, and Russell E. Perkinson, of the University of Illinois, have been appointed as graduate assistants in the Department of Agricultural Economics at the University of Illinois.

G. Alvin Carpenter has been transferred from teaching and research on the staff of Department of Agricultural Economics, to Extension Economist, Utah State Agricultural College.

Walter P. Cotton, who has been taking graduate work at the University of Minnesota, has accepted a position as Assistant Professor of Agricultural Economics, South Dakota State College.

Lawrence E. Cron who has been Assistant Land Use Planning Specialist located at the University of Maryland, College Park, Maryland, has resigned to accept a position as Assistant Agricultural Statistician with the Crop Reporting Service at Charleston, West Virginia.

R. A. Fisher, Sc.D., F.R.S., Galton Professor, University College, University of London, has accepted an offer to be a Visiting Professor of Experimental-Statistics at North Carolina State College during the summer session.

R. H. Flynn, formerly assistant at Illinois, has accepted a position as farm manager for the Federal Land Bank. His headquarters are at Norfolk, Nebraska.

Recent changes in the Economics Department, Ontario Agricultural College include the enlistment of Messrs J. B. Gartshore, Gordon Hunter and Alex Stewart, all of whom have been granted Commissions. Professor C. W. Riley of the O.A.C. is serving as a Lieutenant in the Reserve army. Mr. R. S. Ritchie, a recent graduate student from Queen's University has been appointed to take Mr. Stewart's place during his period of active service.

C. E. Gatlin, Associate Professor of Rural Economics, University of Tennessee Junior College, has taken a leave of absence to serve as Captain in the U. S. Army. John D. Rush, formerly associated with the Tennessee Agricultural Experiment Station, has been appointed to the vacancy at the Junior College.

George H. Goldsborough who has been employed as Rehabilitation Supervisor for the Farm Security Administration in Southern Maryland

has resigned to accept the position as Assistant Land Use Planning Specialist at College Park, Maryland.

T. W. Grindley, former Chief, Agricultural Division, Dominion Bureau of Statistics who has been on loan as Secretary of the Canadian Wheat Board has been appointed Grain Economist, Department of Trade and Commerce of Canada. He continues on loan as Secretary to the Wheat Board.

Supervision of the Federal-State poultry and egg grading service is now under Henry G. F. Hamann, senior marketing specialist of the Agricultural Marketing Service, U.S.D.A. Mr. Hamann has succeeded Thomas W. Heitz, who resigned from the Service last fall to enter into commercial work.

B. H. Hibbard, Emeritus Professor of Agricultural Economics, the University of Wisconsin, is teaching this semester at Mississippi State College.

To facilitate the dissemination by radio of market news and other agricultural information from Chicago, the Agricultural Marketing Service, U.S.D.A. on January 15 added Lance G. Hooks to its market news staff in that city.

Howard J. Houk, Purdue University, has accepted a position with the Commodity Exchange Administration in Chicago.

Stewart M. Johnson Assistant Agricultural Economist of the Vermont Agricultural Experiment Station is on leave of absence during the current semester to engage in postgraduate study at Cornell University.

J. E. Lattimer, Professor of Agricultural Economics, Macdonald College, Quebec was recently engaged on a special assignment for the Nova Scotia Government.

James C. Lesar, formerly of Illinois, is located in Chicago as Assistant Economist with the Commodity Exchange Administration of the U. S. Department of Agriculture.

L. S. Matthews, John Charnetski, G. P. Boucher, A. D. B. Marshall of the Economics Division, Department of Agriculture and P. H. Ferguson, Agricultural Branch, Dominion Bureau of Statistics have enlisted and hold Commissions in the Canadian army or in the Royal Canadian Air Force. Lieutenants Matthews and Charnetski have been in England for some time.

W. K. McPherson, formerly of Iowa State College, has been appointed to the staff of the Department of Agricultural Economics of the Alabama Polytechnic Institute to undertake a study of the marketing and processing of livestock and livestock products in Alabama and adjacent Tennessee Valley Areas.

B. D. Raskopf, who has been employed by the Agricultural Marketing Service, is now making a study of cotton storage problems for the Tennessee Agricultural Experiment Station.

Gordon C. Reid has joined the field staff of the Dairy and Poultry Division of the Agricultural Marketing Service, U.S.D.A., as junior marketing specialist, with headquarters at San Francisco, Calif.

Wayne Reitz, of the University of Florida, who for the past two years has taken graduate work at the University of Wisconsin, is spending this semester in land use planning work with the South Carolina extension service.

J. B. Rutherford, Dominion Bureau of Statistics, Ottawa, Canada, and I. S. McArthur of the Economics Division, Department of Agriculture are serving in the Reserve army while continuing their regular work with their respective Departments.

Elmer N. Searls, Assistant at Illinois since 1937, has been employed as assistant to the field secretary of the Illinois Agricultural Association. He is located at 608 South Dearborn, Chicago.

John C. Scholl, formerly with the North Carolina Climatological and River Center of the Weather Bureau, was appointed November 16, 1940, as assistant agricultural statistician in the Agricultural Marketing Service, U.S.D.A. He is engaged in assembling basic weather data for use in current crop forecasts and in the crop-weather research projects sponsored by that Service.

T. W. Schultz, head of the Department of Economics and Sociology, Iowa State College, is a member of a group which left the United States on April 11 to study farm conditions in Brazil and other South American countries. The trip is sponsored by the Carnegie Endowment for International Peace.

Geoffrey Shepherd, Iowa State College, is in Washington, D. C. on a short leave of absence to conduct research on the ever-normal granary. He is working with the Division of Marketing and Transportation Research in the Bureau of Agricultural Economics.

Forest G. Warren, formerly assistant at Illinois, is located in Chicago as Associate Economist with the Commodity Exchange Administration of the U. S. Department of Agriculture.

O. J. Wheatley, Extension Economist, Utah State Agricultural College, has resigned to accept a position with the Farm Security Administration with headquarters at Denver, Colorado.

Ramey C. Whitney, Assistant in Economics, Colorado State College, received an appointment as Associate Agricultural Economist from the Bureau of Agricultural Economics, U. S. Department of Agriculture. He left Colorado the latter part of this month and will undertake an assignment in the Bureau's offices at Lincoln, Nebraska. His new work will have a direct bearing upon agricultural adjustment problems in the Northern Plains Area.

C. F. Wilson and J. B. Rutherford have been appointed Chief and Assistant Chief respectively, of the Agricultural Branch, Dominion Bureau of Statistics, Canada.

Lawrence Witt, Research Associate, Iowa State College, has accepted a joint appointment with the Institute of Current World Affairs and Iowa State College. He will make a study of the effects of changes in agricultural technology upon the agricultural and public relations of the United States with Canada and South America. He will spend the major portion of the next few years in Canada, Brazil and Argentina.

CARL L. ALSBERG

1877–1940

The passing of Carl L. Alsberg on November 1, 1940, represents indeed a loss, not only to the world of science, but even more so to those who had the privilege of knowing and working with him. His loss will be felt in many different quarters because of the extraordinary breadth of his interests and in all-embracing curiosity which led him into ever newer fields. His life was one of many transitions and to each new task he brought, not only the wealth of great experience, but also a rare originality of thought and quickness of perception.

Born in New York City in 1877, his early education was not along conventional lines but took place entirely at home under the supervision of his mother, a woman of unusual intelligence, and his father, who was a chemist. While still quite young, he entered Columbia University, from which he obtained an A.B. degree at the age of nineteen. His early interest was in biochemistry, probably traceable to the influence of his father, and as training for his chosen field he studied medicine, taking an M.D. degree from Columbia in 1900. Thereafter followed three years of scientific study and research at the Universities of Strassburg and Berlin, and upon his return to the United States he was appointed Assistant in Physical Chemistry at Harvard University. His association with that institution in various capacities lasted until 1908 at which time he entered the service of the Bureau of Plant Industry in the United States Department of Agriculture as Chemical Biologist. In 1912 he was selected to head the Bureau of Chemistry in the Department of Agriculture and served as Bureau Chief for nine years, during which time he developed a keen interest in problems of governmental policy and administration.

On the founding of the Food Research Institute at Stanford University in 1921, he accepted appointment as one of the three original directors, his fellow directors being Dr. Alonzo Taylor and Dr. Joseph S. Davis. With his removal to the West Coast Dr. Alsberg soon became deeply interested in problems of the Pacific area, in particular those of food supply and their effect upon the population of the Far East and North America. The result was his very active participation in the Institute of Pacific Relations, and for years he served, not only as Trustee, but also as Chairman of the

International Research Committee of that body. He was, in addition, a member of the Committee on Pacific Investigations, Division of Foreign Relations, of the National Research Council, and a member of the Pacific Coast Regional Committee of the Social Science Research Council.

It was at the Food Research Institute that Dr. Alsberg first took an active interest in economics, an interest stimulated by his close association with others concerned primarily with the economics of food supply. As a result, his energies were given a new direction, to which a lengthy list of publications on various economic phases of the food industry can attest. He was in particular attracted by problems of food production and commodity regulation, and in recent years devoted much time to the study of these questions in relation to wheat and fats and oils.

On the whole, the years at Stanford represented a transition between the natural scientist and the social scientist, and with his appointment in 1938 as Director of the Giannini Foundation and Professor of Agricultural Economics at the University of California, this new development was completed. Due to his own experience, Dr. Alsberg was always deeply concerned with the relationship between the physical and the social sciences. His years of service to the former had confirmed his belief in the great worth of the natural sciences, not only *per se*, but as a discipline for the scholar. He was especially fascinated by the problem of adapting the methods of research employed in the natural sciences to research in the social sciences and emphasized the value of scientific methods in his teaching.

To give a list of Dr. Alsberg's publications and the many organizations in which he was active would require much space. Above all, it would give no genuine picture of his truly great contribution to science and to society, for much of this lies hidden in the encouragement and stimulus he has given to others. Never one to be sparing of his help, his suggestions and advice have led to the inauguration and completion of many works of scholarship and research, and even invention, which otherwise might not have seen the light of day. For this he claimed no credit but the satisfaction of seeing a good piece of work well done. His influence will live long after him in those who knew him.

E. C. V.

DECEMBER 23, 1940
University of California